

A complete range for metering,  
monitoring & power quality

2018  
2019





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## Multi-circuit metering & measurement

### DIRIS Digiware AC



**DIRIS Digiware D and C**  
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**DIRIS Digiware U**  
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**DIRIS Digiware S**  
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**DIRIS Digiware I**  
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### DIRIS Digiware DC



**DIRIS Digiware Udc**  
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**DIRIS Digiware Idc**  
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**DIRIS Digiware IO**  
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## Single-circuit metering, measurement & analysis



**COUNTIS E**  
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**DIRIS A**  
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## Communication interfaces



**DIRIS G**  
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**DATALOG H60/H80**  
p. 146

## Software suite

Embedded web server  
**WEBVIEW**



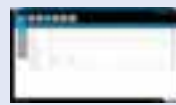
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Online energy management  
service **N'VIEW**



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Management software for  
**COUNTIS and DIRIS**



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## Current sensors



**AC current sensors  
TE, TR, TF**  
p. 46



**DC current sensors**  
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## Current transformers



**Current  
transformers  
5 to 6000 A**  
p. 122

## Quality analyser



**DIRIS Q800**  
p. 68



# For the energy performance of your critical installations

The benefit of a specialist

# SO innovative!

Since its foundation more than 95 years ago, SOCOMEC continues to design and manufacture its core products in Europe. Notably solutions for its primary mission: the availability, control and safety of low voltage electrical networks.

As an independent manufacturer, the Group is committed to constant innovation to improve the energy performance of electrical

installations in infrastructures as well as industrial and commercial sites.

Throughout its history, SOCOMEC has constantly anticipated market changes by developing cutting-edge technologies, providing solutions that are adapted to customer requirements and fully in keeping with international standards.

"Optimising the performance of your system throughout its life cycle" - this is the commitment carried out every day by the SOCOMEC teams around the world, wherever your business is located.

SDIV419 A

**1**  
independent  
manufacturer

**3,500 m<sup>2</sup>**  
of test platforms

One of the leading  
independent power  
testing labs in Europe

**10 %**  
of turnover  
invested  
in R&D

Always at the  
cutting-edge of  
technology for  
innovative, high-  
quality products

**70,000**  
on-site  
interventions  
per year

Nearly 400 experts  
in commissioning,  
technical audit,  
consultancy and  
maintenance





# Your energy, our expertise

## Power conversion

### **Ensuring the availability and storage of high quality power**

With its wide range of continuously evolving products, solutions and services, Socomec are recognised experts in the cutting-edge technologies used for ensuring the highest availability of the electrical power supply to critical facilities and buildings, including:

- static uninterruptible power supplies (UPS) for high-quality power free of distortions

and interruptions occurring on the primary power supply,

- changeover of static, high availability sources for transferring the supply to an operational back-up source,
- permanent monitoring of the electrical facilities to prevent failures and reduce operating losses,
- energy storage for ensuring the proper energy mix of buildings and for stabilisation of the power grid.



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## Power switching

### **Managing power and protecting persons and facilities**

Active in the industrial switching market since its foundation in 1922, Socomec is today an undisputed leader in the field of low voltage switchgear, providing expert solutions that ensure:

- isolation and on load breaking for the most demanding switching applications,
- continuity of the power supply to electrical facilities via manual remotely operated or automatic transfer switching equipment.
- protection of persons and assets via fuse-based and other specialist solutions.



APPLI/5/5A

## Power monitoring

### **Managing the energy performance of buildings**

Socomec solutions, from current sensors through to a wide choice of innovative scalable software packages are driven by experts in energy performance. They meet the critical requirements of facility managers and operators of commercial, industrial and local authority buildings for:

- measuring energy consumption, identifying sources of excess consumption and raising the awareness of occupants about their impact,
- limiting reactive energy and avoiding the associated tariff penalties,
- using the best available tariffs, checking utility bills and accurately distributing energy billing among consumer entities,
- monitoring and detecting insulation faults.



APPLI/5/7A

## Expert Services

### **Enabling available, safe and efficient energy**

Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment:

- prevention and service operations to lower the risks and enhance the efficiency of operations,
- measurement and analysis of a wide range of electrical parameters leading to

recommendations for improving the site's power quality,

- optimisation of the total cost of ownership and support for a safe transition when migrating from an old to a new generation of equipment,
- consultancy, deployment and training from the project engineering stage through to final procurement,
- performance assessment of the electrical installation throughout the life cycle of the products via analysis of data transmitted by connected devices.



APPLI/7/6A

# Adapted solutions

to meet your energy objectives

## SMART BUILDINGS

Reducing your energy bills and energy dependency



- DIRIS Digiware AC & DC multi-circuit measurement system
- ENERGY MANAGEMENT software packages
- AtyS automatic and remotely operated transfer switches
- SUNSYS PCS<sup>2</sup> Power Conversion System and Storage

## Controlling and securing your energy



- DELPHYS MX UPS
- COUNTIS E energy meter and DIRIS A multifunction meter (PMD)

## NAVAL SHIPS

Energy conversion in environments with harsh restrictions



- SHARYS IP rectifier
- NETYS RT-M UPS
- UPS and other customised products
- SIRCO load break switches

## SHOPPING CENTRES

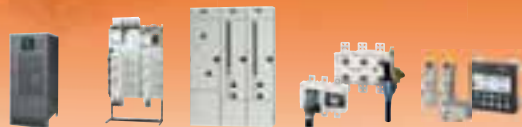
Assuring your business continuity and visitor safety



- COUNTIS E energy meter and multi-utility pulse concentrator
- AtyS M automatic and remotely operated modular transfer switches
- MASTERYS BC+ UPS
- EMERGENCY CPSS, secure power supply for emergency systems
- ENERGY MANAGEMENT software packages

## PUBLIC DISTRIBUTION AND SMART GRID

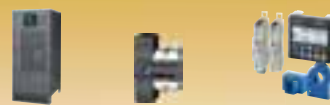
Helping you to meet the challenge of energy demand and response



- SUNSYS PCS<sup>2</sup> Power Conversion System and Storage
- TIPI low-voltage feeder pillar with DIRIS multi-function meter
- Auxiliary unit with ATyS transfer switch
- SIRCO and SIDER load break switches
- DIRIS Digiware AC & DC multi-circuit measurement system

## RENEWABLE ENERGY

Guaranteeing the performance, security and durability of your photovoltaic facilities



- SUNSYS PCS<sup>2</sup> Power Conversion System and Storage
- INOSYS LBS DC load break switches with tripping function
- DIRIS Digiware DC multi-circuit measurement system



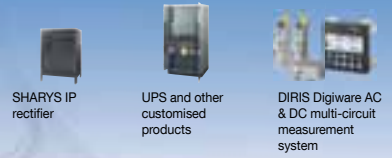
## HEAVY INDUSTRY



FUSERBLOC fuse combination switches  
 Safety enclosure with switch disconnector for standard and explosive environments  
 DIRIS Q800 network analyser

## POWER PLANTS

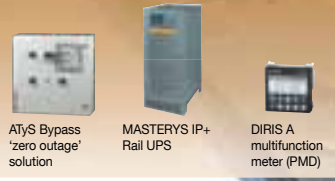
Securing the piloting of your high-security installations and installations with seismic constraints



SHARYS IP rectifier  
 UPS and other customised products  
 DIRIS Digiware AC & DC multi-circuit measurement system

## TRANSPORT

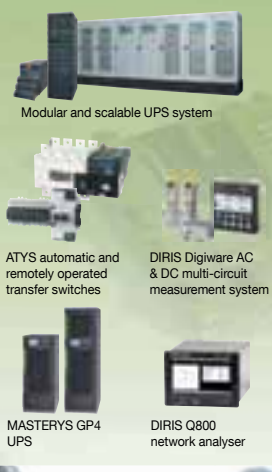
Securing the continuity of your installations



ATyS Bypass 'zero outage' solution  
 MASTERYS IP+ Rail UPS  
 DIRIS A multifunction meter (PMD)

## DATA CENTRES

Meeting the challenge of the availability and performance of your energy



Modular and scalable UPS system  
 ATyS automatic and remotely operated transfer switches  
 MASTERYS GP4 UPS  
 DIRIS Digiware AC & DC multi-circuit measurement system  
 DIRIS Q800 network analyser

## MEDICAL FACILITIES

Assuring patient safety and the energy performance of your hospital



Green Power 2.0 UPS  
 ATyS automatic and remotely operated transfer switches  
 MASTERYS GP4 UPS  
 MEDSYS medical IT cabinet  
 DIRIS Digiware AC & DC multi-circuit measurement system

## INDUSTRY

Ensuring the competitiveness of your site



MASTERYS IP+ UPS for harsh industrial environments  
 ENERGY MANAGEMENT software packages  
 Components for distribution enclosure with FUSERBLOC fuse-combination switches  
 DIRIS Digiware AC & DC multi-circuit measurement system  
 SIRCO load break switches

## EXPERT SERVICES



We offer a wide range of value-added services ensuring the reliability of your equipment throughout its design life. Ask for personalised support -



# Expert Services your partner

enabling available, safe and efficient energy

SOCOMECC is committed to deliver a wide range of value-added services to ensure the availability of your critical installation, the safety of your site operations and the performance optimisation of your low voltage equipment during its life cycle. The expertise and proximity of our specialists are there to ensure the reliability and durability of your equipment.



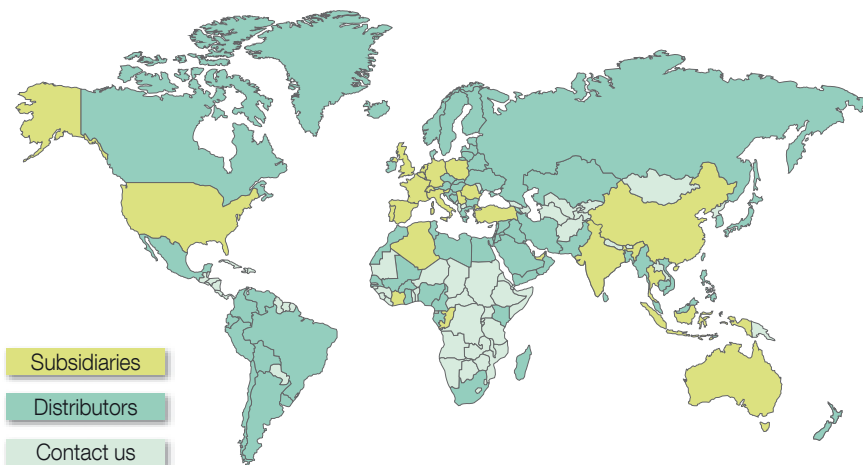
APPLI 724-A

## Key figures

Nearly 400 Socomec experts supported by 200 engineers and technicians from our distributors, drive the solutions to your specific needs.

Our global presence includes:

- 10 branches in France,
- 12 European subsidiaries,
- 8 Asian subsidiaries,
- representatives in 70+ countries.



CARTE 068 H

## On-site service management

- 65,000 service operations per year (mainly preventive visits).
- 98% Service Level Agreement compliance rate.



APPLI 571 A

## Technical hotline network

- 20+ languages spoken.
- 3 advanced technical support centres.
- 100,000+ incoming calls handled per year.



SITE 598 A

## Certified expertise

- 5,000 hours of technical training deployed per year (product, methodology and safety).



CCPPO 289 A

# A cutting-edge laboratory

the backing of an expert

Created in 1965, SOCOMEC's laboratory brings its expertise to guarantee the reliability and the conformity of our products and solutions.

Since 2015, the laboratory renamed Tesla Lab – Power Testing and Certification in 2015, offers its testing and certification services to all its customers.



CORPC 441 A

## Proven expertise

Tesla Lab is an independent laboratory specialised in testing of LV switchgear, components and switchgear assemblies.

4 M€ has been invested since 2011 in this 2000 m<sup>2</sup> laboratory, where 30 experts guarantee the quality of the performed tests, making the Tesla Lab one of the most modern laboratories in Europe.

## Vast range of tests

The laboratory has a 100 MVA ( $I_{cc}$  100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and many other test facilities covering 2000 m<sup>2</sup> for:

- functional tests,
- mechanical tests: endurance,
- dielectric tests,
- environmental tests: vibration,
- Ingress Protection (IP),
- temperature rise tests up to 60 °C ambient.

## International partnership

The laboratory is recognised by the major certification bodies worldwide: member of ASEFA and LOVAG, it is accredited by COFRAC, UL (CTDP), CSA (shared certification) and DEKRA (WMT).

The partnership with many international certification bodies guarantees the quality and safety requirements in each country.

## Implementation of standard IEC/EN 61439

### Electrical switchgear manufacturers

IEC/EN 61439 standards define the requirements of "Low voltage switchgear assemblies" as well as the tests necessary to ensure the achievement of the specified levels of performance. The compliance with these standards gives a guarantee of safety and performance to the user of the equipment



### An original manufacturer according to IEC/EN 61439 standards

Socomec offers a wide range of original manufacturer solutions complying with IEC 61439 standards.

- FLEXYS and CADRYS cabinet systems designed for distribution panel applications.
- Local switching and equipment cabinets covering requirements in power availability and safety.
- Components for integration.

### Tesla Lab accredited by COFRAC

With its world-class testing facilities, the Tesla Lab can perform all of the tests required by IEC/EN 61439 standards for switchgear assemblies

We can therefore help you to:

- define a verification program,
- perform conformity tests,
- issue test reports in order to get certification from third party certification bodies (ASEFA, LOVAG, DEKRA, UL, CSA, COFRAC, ASTA...).

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# Integrated technologies

Groundbreaking technologies for greater simplicity and performance



## PreciSense

Products that are setting new standards in measurement accuracy

PreciSense technology ensures 100% reliable accuracy over the entire measuring chain.

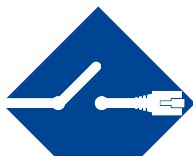
Be guaranteed of the accuracy of your measurements:

- For the global measurement chain.
- For reliable measurements.
- For relevant corrective actions.

PreciSense technology offers the best accuracy on the market regardless of the type of current sensors used (closed, split-core, flexible or embedded in the DIRIS Digiware S module).



Discover the video



## VirtualMonitor

The simple and cost-saving solution for monitoring your protective devices

Virtual Monitor technology enables a monitoring solution to be installed simply and at all levels of the installation.

Virtual Monitor:

- Detects the position and status of the device.
- Detects tripping of the protective device.
- Meters the number of operations.

VirtualMonitor technology monitors the status of protective devices:

- On your entire electrical installation (without additional space).
- Remotely and in real-time.
- Without additional hardware or wiring (without adding an auxiliary contact).



Discover the video



## AutoCorrect

The software that eliminates wiring errors

AutoCorrect technology ensures that the equipment is properly wired at all times, thus avoiding on-site inspections.

AutoCorrect technology ensures the operation of the measuring system thanks to simple and rapid detection of connection errors:

- Automatic wiring control (phase sequence detection and automatic configuration of the direction of the current).
- Correction of errors with a single click.
- Feature available off-load.

Error correction is carried out without any modification to the wiring.



Discover the video



S70V\_419\_A

PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring devices.

#### Power metering and monitoring system for AC electrical installations

- DIRIS Digiware S with its 3 integrated sensors and DIRIS Digiware I associated with iTR sensors.



#### Multifunction meters

- DIRIS A-40 with iTR sensors.







# Selection guide

Measurement and monitoring system for electrical installations

**DIRIS Digiware**

Multi-circuit metering & measurement

## Build your own AC system

Control and power supply interface  
(24 VDC)



**DIRIS Digiware D**  
with display

or



**DIRIS Digiware C**  
without screen

+

Voltage acquisition module



**DIRIS Digiware U-x**

+

Current acquisition module with integrated sensors



**DIRIS Digiware S**

Current acquisition modules



**DIRIS Digiware I-3x**  
3 inputs



**DIRIS Digiware I-4x**  
4 inputs



**DIRIS Digiware I-6x**  
6 inputs

+

Current sensors



**TE**  
Solid



**TR**  
Split-core



**TF**  
Flexible

+

Digital and analog input/output modules



**DIRIS Digiware IO-x**



## Find the best DIRIS Digiware configuration!



The Socomec Meter Selector is your digital assistant, helping you find the best DIRIS Digiware configuration for your energy performance projects, and all in just a few clicks!

- Fill in information regarding your project.
- Download the electrical diagram and bill of material.
- Find all your archived projects in your personal account.

## Control and power supply interface

Application	Centralisation and display of data			Data centralisation	Repeater
					
<i>DIRIS Digiware</i>	<i>D-40</i> <i>p. 30</i>	<i>D-50</i> <i>p. 30</i>	<i>D-70</i> <i>p. 30</i>	<i>C-31</i> <i>p. 30</i>	<i>C-32</i> <i>p. 30</i>
<b>Function</b>					
Centralising measurement points:	•	•	•	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•	•		
Repeater					•
<b>Power supply</b>					
24 VDC	•	•	•	•	•
<b>Communication</b>					
RS485 Modbus	output	input	input	•	
Bus Digiware	•	•	•	•	•
Ethernet		Modbus TCP	Modbus TCP BACnet IP SNMP		
Embedded web server			•		

## Voltage acquisition module









Application	Metering	Monitoring	Analysis
			
<i>DIRIS Digiware U</i>	<i>U-10</i> <i>p. 36</i>	<i>U-20</i> <i>p. 36</i>	<i>U-30</i> <i>p. 36</i>
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Crest factors V1, V2, V3, U12, U23, U31			•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN50160)			•
<b>Alarms</b>			
On threshold			•
<b>History</b>			
Average values			•
<b>Format</b>			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

# Selection guide




Measurement and monitoring system for electrical installations

DIRIS Digiware

## Current acquisition modules

Application	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
<b>DIRIS Digiware I</b>	<b>I-30</b> <i>p. 42</i>	<b>I-31</b> <i>p. 42</i>	<b>I-33</b> <i>p. 42</i>	<b>I-35</b> <i>p. 42</i>	<b>I-43</b> <i>p. 42</i>	<b>I-45</b> <i>p. 42</i>	<b>I-60</b> <i>p. 42</i>	<b>I-61</b> <i>p. 42</i>
Number of current inputs	3	3	3	3	4	4	6	6
<b>Metering</b>								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
<b>Multi-measurement</b>								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, linv, lhom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
<b>Quality</b>								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to level 63)				•		•		
Crest factors I1, I2, I3, In				•		•		
Overcurrents				•		•		
<b>Alarms</b>								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
<b>History</b>								
Average values				•		•		
<b>Format</b>								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

Current acquisition module with integrated sensors

Application	Metering	Analysis	Monitoring
			
<b>DIRIS Digiware S</b>	<b>S-130</b> <i>p. 38</i>	<b>S-135</b> <i>p. 38</i>	<b>S-Datacenter</b> <i>p. 38</i>
Number of current inputs	3	3	3
Base current $I_b$	10 A	10 A	10 A
Maximum current $I_{max}$	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
<b>Metering</b>			
$\pm$ kWh, $\pm$ kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
<b>Multi-measurement</b>			
$I1, I2, I3, I_n, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance ( $I_{nba}, I_{nb}, I_{dir}, I_{inv}, I_{hom}$ )		•	
Phi, cos Phi, tan Phi		•	•
<b>Quality</b>			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to level 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
<b>Alarms</b>			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
<b>Trends</b>			
Average values		•	•
<b>Format</b>			
Width	54 mm	54 mm	54 mm








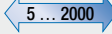
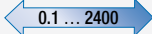


# Selection guide





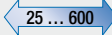
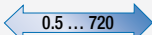
Measurement and monitoring system for electrical installations

DIRIS Digiware




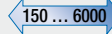
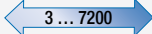
## Current sensors

Suitable for new installations match the pitch of protective devices	Solid-core current sensors						
							
	<b>TE-18</b> <i>p. 46</i>	<b>TE-25</b> <i>p. 46</i>	<b>TE-35</b> <i>p. 46</i>	<b>TE-45</b> <i>p. 46</i>	<b>TE-55</b> <i>p. 46</i>	<b>TE-90</b> <i>p. 46</i>	<b>TE-90</b> <i>p. 46</i>
Nominal current $I_n$ (A) 	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A) 	0.1 ... 24	0.5 ... 75.6	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Aperture (mm)	Ø 8.4	Ø 8.4	13.5 x 13.5	21 x 21	31 x 31	41 x 41	64 x 64
Dimensions (mm)	28 x 20 x 45	28 x 20 x 45	25 x 32.5 x 65	35 x 32.5 x 71	45 x 32.5 x 86	55 x 32.5 x 100	90 x 126 x 24.6
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12



For demands greater than 2000 A, the 5 A / RJ12 adapter guarantees the compatibility of the TCs.

Suitable for existing installations	Split-core current sensors			
				
	<b>TR/iTR-10</b> <i>p. 50</i>	<b>TR/iTR-14</b> <i>p. 50</i>	<b>TR/iTR-21</b> <i>p. 50</i>	<b>TR/iTR-32</b> <i>p. 50</i>
Nominal current $I_n$ (A) 	25 ... 63	40 ... 160	63 ... 250	160 ... 600
Actual coverage range (A) 	0.5 ... 90	0.64 ... 120	1.26 ... 200	4 ... 720
Aperture (mm)	Ø 10	Ø 14	Ø 21	Ø 32
Dimensions (mm)	26 x 44 x 28	29 x 67 x 28	37 x 65 x 43	53 x 86 x 47
Connection	RJ12	RJ12	RJ12	RJ12

For demands greater than 600 A, the 5 A / RJ12 adapter guarantees the compatibility of the TCs.

Suitable for existing installations with space restrictions or with a high-intensity current	Flexible current sensors		
			
	<b>TF-55</b> <i>p. 52</i>	<b>TF-120</b> <i>p. 52</i>	<b>TF-300</b> <i>p. 52</i>
Nominal current $I_n$ (A) 	150 ... 600	500 ... 2000	1600 ... 6000
Actual coverage range (A) 	3 ... 720	10 ... 2400	32 ... 7200
Aperture (mm)	Ø 55	Ø 120	Ø 300
Connection	RJ12	RJ12	RJ12

Input/output modules

Application	Metering / monitoring / control	
		
<i>DIRIS Digiware IO</i>	<b>IO-10</b> <i>p. 66</i>	<b>IO-20</b> <i>p. 66</i>
Number of digital inputs/outputs	4/2	
Number of analog inputs		2
<b>Format</b>		
Width/number of modules	18 mm/1	18 mm/1



# Selection guide

## Measurement and monitoring system for DC electrical installations

### DIRIS Digiware

Multi-circuit metering & measurement

Build your own DC system

Control and power supply interface (24 VDC)



**DIRIS Digiware D-x**  
with display

or



**DIRIS Digiware C**  
without screen

+

Direct voltage acquisition module



**DIRIS Digiware Udc**

+

DC voltage adaptors



**DIRIS Digiware U500dc/U1000dc/U1500dc**

DC current acquisition module

+



**DIRIS Digiware Idc**  
3 current sensor inputs

+



DC current sensors



Solid-core sensors  
50 ... 5000 A

Split-core sensors  
50 ... 2000 A

Control and power supply interface

Application	Centralisation and display of data			Data centralisation	Repeater
					
<i>DIRIS Digiware</i>	<i>D-40</i> <i>p. 30</i>	<i>D-50</i> <i>p. 30</i>	<i>D-70</i> <i>p. 30</i>	<i>C-31</i> <i>p. 30</i>	<i>C-32</i> <i>p. 30</i>
<b>Function</b>					
Centralising measurement points	•	•	•	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•	•		
Repeater					•
<b>Power supply</b>					
24 VDC	•	•	•	•	•
<b>Communication</b>					
RS485 Modbus	OUT	IN	IN	•	
Digiware Bus	•	•	•	•	•
Ethernet		Modbus TCP	Modbus TCP BACnet IP SNMP		
Embedded web server			•		








# Selection guide

Measurement and monitoring system for DC electrical installations



DIRIS Digiware

## Direct voltage acquisition module (DC)

Application	DC voltage measurement	
		
<b>DIRIS Digiware Udc</b>	<b>U-31dc</b> <i>p. 54</i>	<b>U-32dc</b> <i>p. 54</i>
<b>Nominal voltage range</b>	24 ... 48 VDC	60 ... 150 VDC
<b>Measuring range (min-max)</b>	19,2 ... 60 VDC	48 ... 180 VDC
<b>Multi-measurement</b>		
DC voltage (VDC)	•	•
<b>Power quality</b>		
V ripple (voltage ripple)	•	•
V <sub>rms</sub>	•	•
<b>Alarms</b>		
Thresholds and combinations	•	•
<b>Trends</b>		
Average values	•	•
<b>Format</b>		
Width/number of modules	18 mm / 1	

Application	DC voltage adaptors		
			
<b>DIRIS Digiware Udc</b>	<b>U500dc</b> <i>p. 54</i>	<b>U1000dc</b> <i>p. 54</i>	<b>U1500dc</b> <i>p. 54</i>
<b>Max. voltage range</b>	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
<b>Association</b>			
U-32dc	•	•	•
<b>Format</b>			
Width/number of modules	54 mm / 3		

## Direct current acquisition module (DC)

Application	Direct current (DC) measurement modules	
		
<b>DIRIS Digiware Idc</b>	<i>I-30dc</i> <i>p. 58</i>	<i>I-35dc</i> <i>p. 58</i>
Number of current inputs	3	3
Metering		
± kWh	•	•
Load curves		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	18 mm / 1	

### DC current sensors



DC current sensors measure the load currents of a DC electrical installation and transmit the information to DIRIS Digiware Idc modules via a quick RJ12 connection with color-coded cables for an easy identification of circuits.

The range comprises solid-core and split-core sensors, from 50 to 5000 A in various sizes, suitable for new or retrofit applications.

- Easy connection to prevent wiring errors.
- Up to 3 sensors on each DIRIS Digiware Idc measurement module.



# Selection guide

## Multifunction meters

### DIRIS A

Single-circuit metering,  
measurement &  
analysis

Which  
application?

Which  
functions?



**DIRIS A-10**  
p. 98

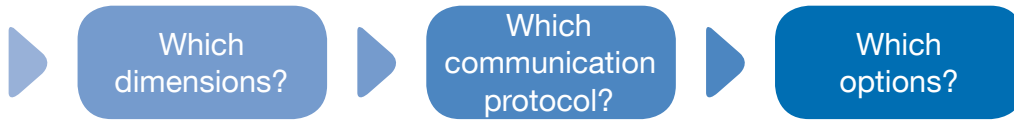




**DIRIS A-20**  
p. 90

		DIRIS A-10 p. 98	DIRIS A-20 p. 90
	<b>Functions</b>	<b>CURRENT TRANSFORMERS</b>	
<b>General characteristics</b>	Remote display		
	Number of loads	1	1
	Mounting	DIN	96°96
	Power supply	AC	AC
	All In One	•	
	Optional modules		•
	Ethernet (Modbus TCP/Bacnet IP)	o/-	o/-
	RS485 (Modbus/Bacnet MSTP)	•/-	•/-
	Profibus DPV1		
	Websserver / File export	o/-	o/o
	Max. number of inputs (digital / analogue)	1/-	3/-
Max. number of outputs (digital / analogue)	1/-	1/-	
<b>Manage energy consumptions</b>	4-quadrant energy metering	•	•
	Load curves (local memory)		
	Rebilling of energy (MID approved)		
	Multi-tariff management	2	
<b>Monitor the electrical installation</b>	Instantaneous, average, min and max values	•	•
	Voltage unbalance measurement		
	Neutral current (measured / calculated)	-/•	-/•
<b>Check the power quality</b>	Harmonic analysis (THD / Individual)	•/-	•/-
	Dip and swell detection		
	Overcurrent detection		
<b>Manage the loads</b>	Operating hours	•	•
	Number of operations (info / alarm)		•/-
	Protective device monitoring (on / off / tripped)	•	•
	Predictive power analysis and load shedding		

•: integrated in the product.

o: optional via DIRIS-G or modules.



 <b>DIRIS A-30</b> <i>p. 84</i>		 <b>DIRIS A-40</b> Modbus <i>p. 72</i>			<b>DIRIS A-40</b> Modbus + Profibus <i>p. 72</i>		<b>DIRIS A-40</b> Modbus + Ethernet <i>p. 72</i>	
CURRENT TRANSFORMERS		SMART SENSORS						
1	1							
96*96	96*96							
AC/DC	AC							
•	•							
0/-	-/-	-/-	-/-	•/•				
•/-	•/-	•/-	•/-	•/-				
0	-	-	•	-				
0/0	0/0	0/0	0/0	•/•				
6/4	3/-							
6/4	2/-							
•	•							
0	•							
•	4							
•	•							
•	•							
-/•	-/•							
•/•	•/•							
•	•							
•	•							
•	•/•							
•	•							
•	•							





# Selection guide

## Active energy meters and pulse concentrators

### COUNTIS E

Single-circuit metering,  
measurement &  
analysis

Which type  
of network?

Which load  
current?

Network - Input current	Single-phase Direct up to 32 A	Single-phase Direct up to 40 A	Single-phase Direct up to 63 A	Single-phase Direct up to 80 A	Three-phase Direct up to 63 A	Three-phase Direct up to 80 A			
		<b>new</b>		<b>new</b>					<b>new</b>
<b>Active energy meters: COUNTIS E</b>	<b>E00/E02</b> <i>p. 106</i>	<b>E03/E04</b> <i>p. 106</i>	<b>E05/E06</b> <i>p. 106</i>	<b>E10/E11/E12</b> <i>p. 108</i>	<b>E13/E14</b> <i>p. 108</i>	<b>E15/E16</b> <i>p. 108</i>	<b>E17/E18</b> <i>p. 108</i>	<b>E20/E21/E22</b> <i>p. 110</i>	<b>E23/E24</b> <i>p. 110</i>

#### Main specifications

	E00/E02	E03/E04	E05/E06	E10/E11/E12	E13/E14	E15/E16	E17/E18	E20/E21/E22	E23/E24
MID: EN 50470 module B + D certification	• (E02)	• (E04)	• (E06)	• (E12)	• (E14)	• (E16)	• (E18)	• (E22)	• (E24)
RS485 Modbus		•			•				•
M-Bus			•			•			
Ethernet Modbus TCP/RTU							•		
Width	1 module	1 module	1 module	3 modules	2 modules	2 modules	2 modules	4 modules	4 modules
Input voltage	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 ... 400 VAC	230 ... 400 VAC

#### Functions

	E00/E02	E03/E04	E05/E06	E10/E11/E12	E13/E14	E15/E16	E17/E18	E20/E21/E22	E23/E24
Total/partial energy kWh	•/-	•/•	•/•	•/• (E10, E11)	•/•	•/•	•/•	•/•	•/•
Active power / Reactive power		•/•	•/•	•/-	•/•	•/•	•/•	•/• (E22)	•/•
Dual tariff for kWh		•	•	• (E11, E12)	•	•	•	• (E21/22)	•
Total/partial energy kvarh		•/•	•/•		•/•	•/•	•/•	• (E22)	•/•
kVA		via COM	via COM		•	•	•	• (E22)	•
Load curve									
Measurement (I, V, P, Q, S, F and PF)		•	•		•	•	•	• (E22)	•
CT connection indication									
Birectional (energy consumption and production)		•	•		•	•	•	• (E22)	•
Integrated web server							•		
Compatibility web server DIRIS G		•			•				•

#### Accuracy

	E00/E02	E03/E04	E05/E06	E10/E11/E12	E13/E14	E15/E16	E17/E18	E20/E21/E22	E23/E24
Active energy (IEC 62053-21)	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1
Reactive energy (according to IEC 62053-23)		class 2	class 2		class 2	class 2	class 2	class 2 (E22)	class 2
Active energy (EN 50470)	class B (E02)	class B (E04)	class B (E06)	class B (E12)	class B (E14)	class B (E16)	class B (E18)	class B (E22)	class B (E24)

#### Characteristics

	E00/E02	E03/E04	E05/E06	E10/E11/E12	E13/E14	E15/E16	E17/E18	E20/E21/E22	E23/E24
Metrological LED	•	•	•	•	•	•	•	•	•
Pulse output	100 Wh	100 Wh	100 Wh	100 Wh	100 Wh	100 Wh		100 Wh	100 Wh
Sealing cover (MID version only)	• (E02)	• (E04)	• (E06)	• (E12)	• (E14)	• (E16)	• (E18)	• (E22)	• (E24)
Phase/neutral inversion protection								•	

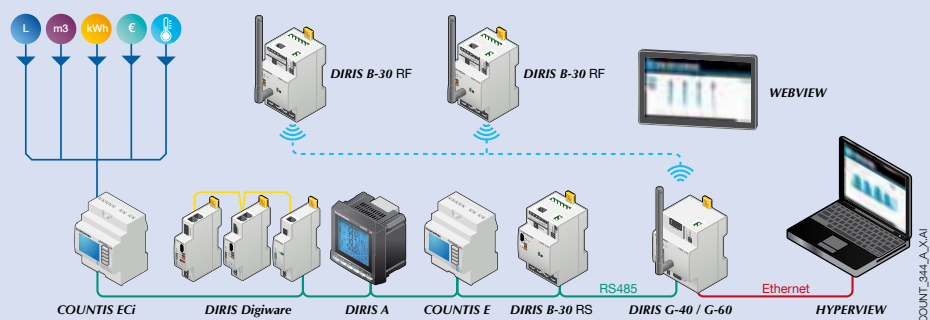
<b>Pulse concentrator</b>	<b>COUNTIS ECi2</b> <i>p. 120</i>	<b>COUNTIS ECi3</b> <i>p. 120</i>
<b>Case</b>	<b>4 modules</b>	<b>4 modules</b>
<b>Logical inputs</b>	<b>7</b>	<b>7</b>
<b>Analogue inputs</b>		<b>2</b>
ON/OFF output (alarm)	1	1
Partial, total, daily, weekly or monthly kWh or other types of data (liters, m³...)	•	•
Load curve from 8 to 30 minutes	•	•
RS485 Modbus	•	•



Three-phase Direct up to 80 A		Three-phase Direct up to 100 A			3 x Single-phase Direct up to 100 A	Three-phase CT/5 A		
<b>new</b> 								
<i>E25 / E26</i> <i>p. 110</i>	<i>E27 / E28</i> <i>p. 110</i>	<i>E30 / E31 / E32</i> <i>p. 112</i>	<i>E33 / E34</i> <i>p. 112</i>	<i>E35 / E36</i> <i>p. 118</i>	<i>E63</i> <i>p. 114</i>	<i>E40 / E41 / E42</i> <i>p. 114</i>	<i>E43 / E44</i> <i>p. 114</i>	<i>E45 / E46</i> <i>p. 116</i>
• (E26)	• (E28)	• (E32)	• (E34)	• (E36)		• (E42)	• (E44)	• (E46)
			•		•		•	
•				•				•
	•							
4 modules	4 modules	7 modules	7 modules	7 modules	7 modules	4 modules	4 modules	4 modules
230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC	230 ... 400 VAC
•/•	•/•	•/• (E31)	•/via COM (E34)	•/via COM (E36)	•/•	•/•	•/via COM (E44)	•/via COM (E46)
•/•	•/•	•/-	•/via COM	•/via COM	•/via COM	•/-	•/via COM	•/via COM
•	•	• (E31 / E32)	up to 4 via com	up to 4 via com	up to 4 via com		up to 4 via com	up to 4 via com
•/•	•/•		via COM	via COM	via COM		via COM	via COM
•	•		via COM	via COM	via COM		via COM	via COM
			via COM	via COM	via COM		via COM	via COM
•	•					•	•	•
•	•		• (E33)	• (E35)			• (E43)	• (E45)
	•							
			•				•	
class 1	class 1	class 1	class 1	class 1	class 1	class 0,5s	class 0,5s	class 0,5s
class 2	class 2					class 2	class 2	class 2
class B (E26)	class B (E28)	class B (E32)	class B (E34)	class B (E36)		class C (E42)	class C (E44)	class C (E46)
•	•	•	•	•	•	•	•	•
100 Wh	100 Wh					configurable		
• (E26)	• (E28)	• (E32)	• (E34)	• (E36)		• (E42)	• (E44)	• (E46)
		•	•	•	•	•	•	•

## COUNTIS ECI pulse concentrator

Enables pulses from water, gas, compressed air, electricity meters or even analogue sensors (light, temperature, wind etc.) to be registered and stored. All data can be centralised and managed by an energy efficiency software via RS485 communication.





# Selection guide

## Software solutions for energy monitoring and analysis

What are the features?

For what size of project?

Where is the data stored?

	WEBVIEW-S	WEBVIEW-M		WEBVIEW-L	N'VIEW
<b>Hosting of the application<sup>(1)</sup></b>	<b>DIRIS A-40 Ethernet</b> <i>p. 152</i>	<b>DIRIS G</b> <i>p. 152</i>	<b>DIRIS Digiware D-70</b> <i>p. 152</i>	<b>DATALOG H80/H81</b> <i>p. 152</i>	<b>Cloud</b> <i>p. 154</i>
<b>Data collection</b>					
Maximum number of connected measurement devices	1	32	32	100 (WEBVIEW-L100) 200 (WEBVIEW-L200)	Unlimited
Import of data from files					•
Interfacing to third-party applications				via connector	via connector
Export of data in CSV format	•	DIRIS G-50/G-60	•	•	•
<b>Real time monitoring</b>					
U/V voltages and currents I	•	•	•	•	n/a <sup>(2)</sup>
Powers P, Q, S, Power factor	•	•	•	•	n/a <sup>(2)</sup>
Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63 <sup>rd</sup>	•	•	•	•	n/a <sup>(2)</sup>
Energy metering Ea+, Ea-, Er+, Er-, Es	•	•	•	•	n/a <sup>(2)</sup>
Pulse counting	•	•	•	•	n/a <sup>(2)</sup>
Input/Output monitoring	•	•	•	•	n/a <sup>(2)</sup>
Measurement history U, V, I, P, Q, S,	•	DIRIS G-50/G-60	•	•	n/a <sup>(2)</sup>
<b>Energy analysis</b>					
Energy consumption analysis	•	DIRIS G-50/G-60	•	•	•
Multi-parameter analysis				•	•
Compare time periods					•
Active energy analysis					•
Power demand analysis					•
Cost analysis					•
Energy performance indicators					•
Linear regression					•
Measurement and verification (IPMVP method)					•
Predictive energy consumption					•
<b>Alarm management</b>					
Product alarms	•	•	•	•	
Software alarms					•
Alarms history	•	•	•	•	•
Transmission of alarms	e-mail	e-mail	e-mail	e-mail	e-mail and SMS
<b>Reporting management</b>					
Creation of customised reports					•
Automatic dispatch of reports by e-mail					•
Creation of customised dashboards					•
Site mapping					Via Google Maps
Customisable user interface			Photoview	Photoview	Synoptic App
Hierarchy management		DIRIS G-50/G-60	•	•	•
<b>Conformity to standards</b>					
Energy Server Standard - IEC 62974-1		•	•	•	

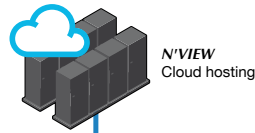
(1) For more information on the hardware please refer to the appropriate catalogue pages.

(2) N'VIEW is a software solution intended for energy management purposes only.

## Architecture

### Level 4

Cloud hosting



### Level 3

Long-distance communication network (WAN)



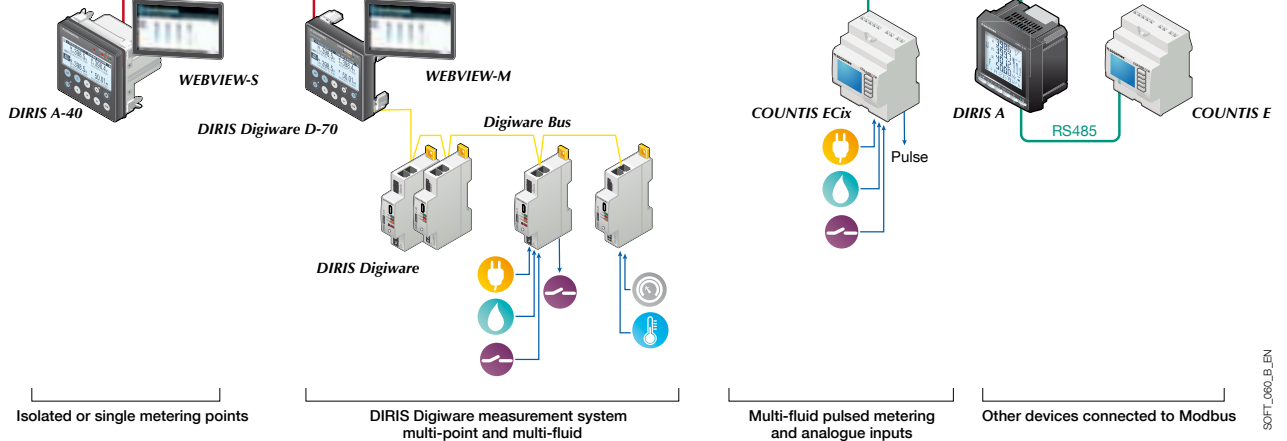
### Level 2

Local communication network (LAN)



### Level 1

PMD & sensors



SOFT\_080\_B\_EN

## Expert Services

### Require integration onto your network?

No problem for our Expert Services team. They work out all the details of the measurement schedule, the complete integration of all devices in your energy management system, the configuration of your software application, the training of your teams and details of operational support. For further information, please contact your nearest Socomec office.



# DIRIS Digiware D and C

## Control and power supply interfaces

Multi-circuit metering & measurement



DIRIS Digiware D-40/D-50/D-70  
Centralisation and display of data

diris-dw\_006\_a\_cat



DIRIS Digiware C-31  
Centralisation

diris-dw\_142\_a

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Centralising and displaying measurement data
- > A single power supply for the entire system
- > A single RS485 or Ethernet output for the entire system
- > Webview embedded web server

### Compliance with standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



Configuration with EasyConfig, see page 156.

## Function

### DIRIS Digiware D-40, D-50 and D-70

DIRIS Digiware D remote displays allow:

- a local view of the data from DIRIS Digiware U, I and IO modules
- a power supply to the DIRIS Digiware modules,
- access to this data over Ethernet (D-50/D-70) or RS485 (D-40).

DIRIS Digiware D-50 and D-70 displays also act as a gateway, centralising measurements from DIRIS Digiware, DIRIS A, DIRIS B and COUNTIS E devices and making them available over Ethernet.

With the DIRIS Digiware D-70 display, data can be visualized on Webview, the "Power & Energy monitoring" embedded web server.

DIRIS Digiware screens are 24 VDC powered.

## Advantages

### DIRIS Digiware D

- High-resolution graphic screen
- Embedded web server (DIRIS Digiware D-70)
- Multi-protocols (Modbus, BACnet, SNMP)
- 24 VDC SELV (Safety Extra Low Voltage) power supply elimination of hazardous voltage on cabinet doors.
- Ergonomic and easy to use with 10 direct access buttons for:
  - measurement information,
  - output selection,
  - equipment configuration.
- Centralising measurement points:
  - circuit selection,
  - displaying data.

### DIRIS Digiware C-31

For applications without a local display DIRIS Digiware C-31 interfaces centralise all the system data.

An RS485 Modbus output allows them to provide all this information to energy efficiency software (DIRIS G communication gateways are available for communication via Ethernet - Modbus TCP).





DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

### DIRIS Digiware C-31

Compact: Centralise your measurement data on 1 module without a local screen, for a complete system:

- single 24 V power supply (no dangerous voltage on DIRIS Digiware modules for a connection with no interruption),
- a single RS485 communication.



Application	Control and power supply interface			
				
<b>DIRIS Digiware</b>	<b>C-31</b>	<b>D-40</b>	<b>D-50</b>	<b>D-70</b>
Digiware input	•	•	•	•
RS485 input			•	•
RS485 Modbus output	•	•		
Ethernet output			Modbus	Modbus BACnet IP SNMP
Webview web server				•

## Functions



### Webview

#### Embedded web server in the DIRIS Digiware D-70 display

Webview allows the display and remote monitoring of all the electric parameters measured by up to 32 devices. They are displayed in the form of overview screens, graphs or tables for clear and user-friendly analysis.

Access to Webview is made by a web browser on a PC or tablet and offers multiple features such as the automatic export of data by FTP or e-mail notification in the presence of alarms (SMTP).

The Photoview application is available via the Webview interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customised background picture such as a cabinet, a wiring diagram or the map of a site.

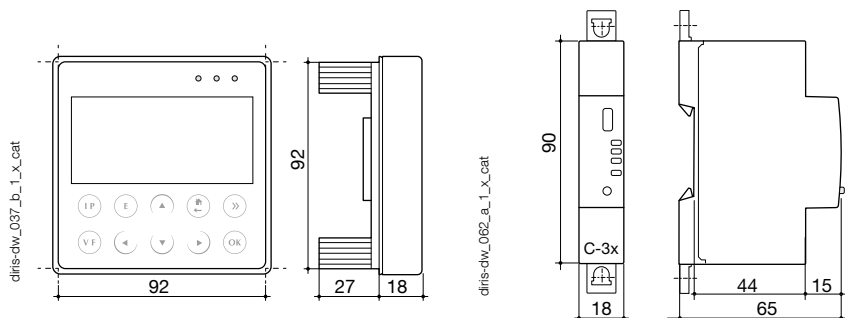
# DIRIS Digiware D and C

Control and power supply interfaces

## Dimensions

DIRIS Digiware D-40/D-50/D-70

DIRIS Digiware C-31



## Configuration

### Equipment consumption

Product	Power delivered (W)	Power consumed (W)
<b>Power supply</b>		
P15 100-240 VAC / 24 VDC	15	
<b>Cables</b>		
50 metre package		1,5
<b>System interfaces</b>		
DIRIS Digiware D-40/D-50		2
DIRIS Digiware D-70		2,5
DIRIS Digiware C-31		0,8
<b>Module voltage</b>		
DIRIS Digiware U-xx		0,72
DIRIS Digiware U-3xdc		0,6
<b>Current modules</b>		
DIRIS Digiware I-3x		0,52
DIRIS Digiware I-4x		1,125
DIRIS Digiware I-6x		0,7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)		2
DIRIS Digiware S-xx		0,35
<b>Input/output modules</b>		
DIRIS Digiware IO-10/IO-20		0,5
<b>Repeater</b>		
DIRIS Digiware C-32		1,5

### Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W/70°C or 27 W/40°C.

#### Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 20 DIRIS Digiware current modules I-3x (20 x 0.52 = 10.4 W)
- ⇒ **Total power = 14.62 W**

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
- ⇒ **Total power = 14.345 W.**

#### Size with a 24 VDC power supply delivering a maximum of 20 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 30 DIRIS Digiware current modules I-3x (30 x 0.52 = 15.6 W)
- ⇒ **Total power = 19.82 W**

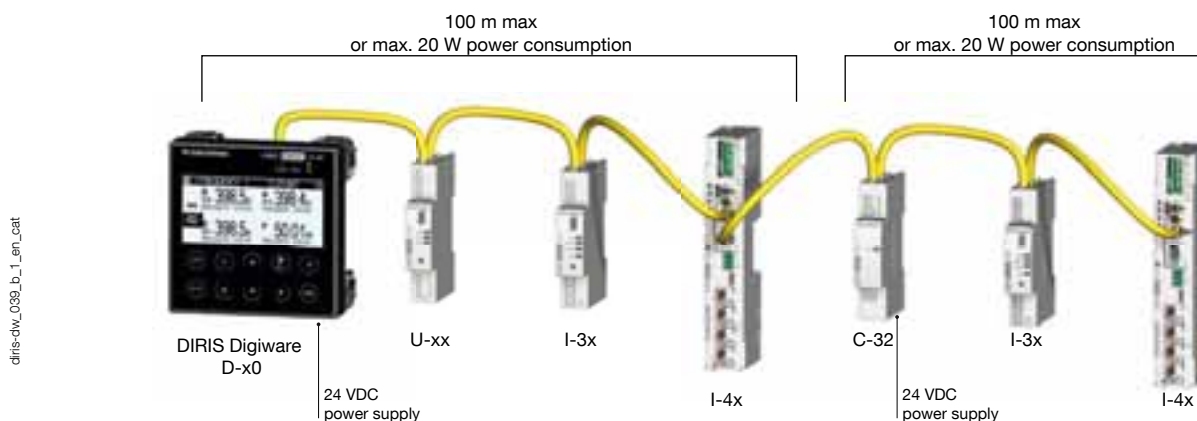
or

- 14 DIRIS Digiware current modules I-4x (14 x 1.125 = 15.72)
- ⇒ **Total power = 19.97 W.**

### Repeater

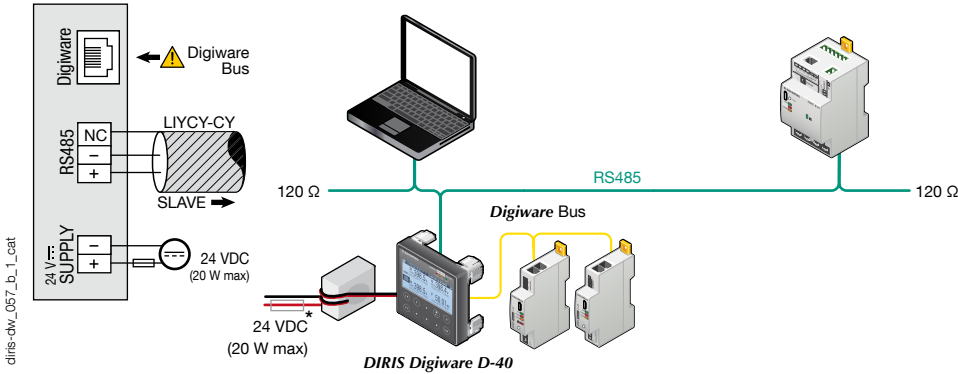
Whenever the power consumption is higher than 20 W or the distance is greater than 100 m, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



## Connections (continued)

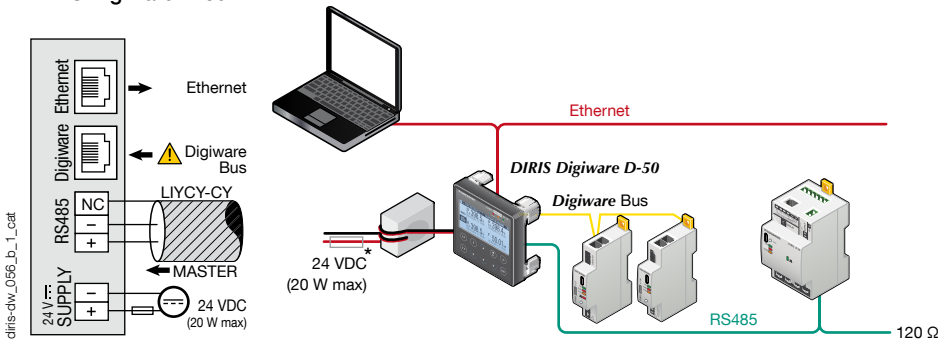
### DIRIS Digiware D-40



(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

(\*\*) On DIRIS Digiware D-40 and D-50 displays, class B radiated power is obtained using ferrites (ref. 4829 0048) on the power supply (two turns).

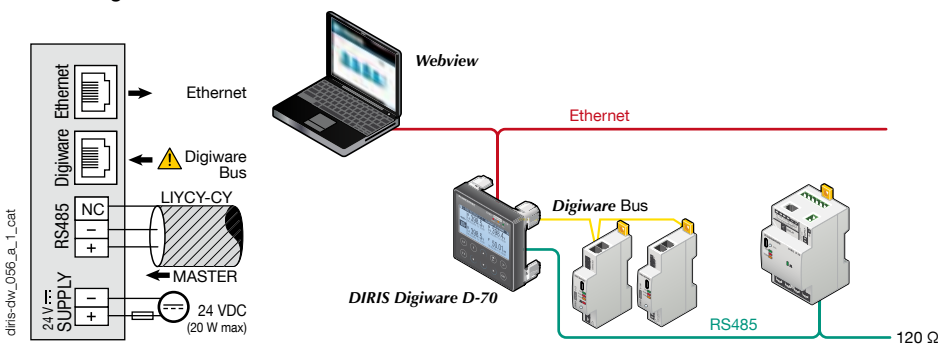
### DIRIS Digiware D-50



(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

(\*\*) On DIRIS Digiware D-40 and D-50 displays, class B radiated power is obtained using ferrites (ref. 4829 0048) on the power supply (two turns).

### DIRIS Digiware D-70



(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

# DIRIS Digiware D and C

Control and power supply interfaces

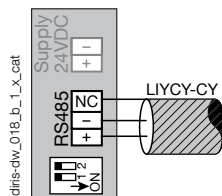
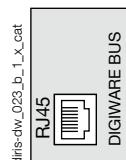
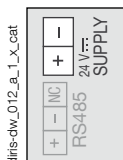
## Connections

### DIRIS Digiware C-31

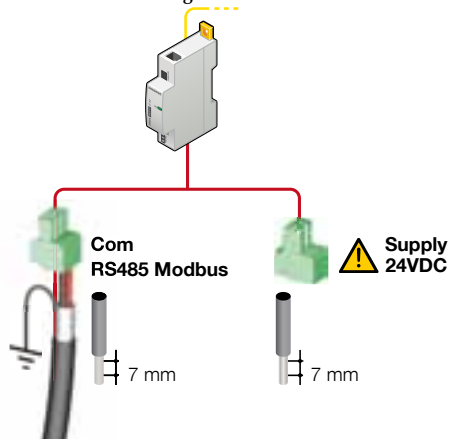
Power supply

Digiware bus

Communication



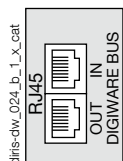
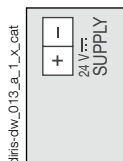
DIRIS Digiware C-31



### DIRIS Digiware C-32

Power supply

Digiware bus



## Technical characteristics

### Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC $\pm$ 20 % - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm <sup>2</sup> cable
P15 power supply	Characteristics: 100-240 VAC/ 24 VDC - 0,63 A - 15 W Modular format - Dimensions (H x L): 90 x 25 mm

### Communication specifications

Digiware Bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections
RS485	
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baudrate	1200 to 115200 bauds
Function	Data configuration and reading
Location	Single-point on DIRIS Digiware C

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 on the nose in modular assembly / IK06

### Environmental specifications

Ambient operating temperature	-10 to +70°C
Storage temperature	-25 to +70°C
Operating humidity	55 °C / 97% HR
Operating altitude	< 2000 m

### DIRIS Digiware D-40/D-50/D-70 features

Mechanical characteristics		
Type of screen	Capacitive touch-screen technology, 10 keys	
Screen resolution	350 x 160 pixels	
Front panel protection index	IP65	
Communication		
Ethernet RJ45 10/100 Mbps	Gateway function: Modbus TCP (D-50/D-70) BACnet IP (D-70) SNMP v1, v2, v3 (D-70)	
RJ45 Digiware	Control and power supply interface function	
RS485 2-3 wires	Modbus RTU communication function (input D-50/D-70/output D-40)	
USB	Upgrade and configuration via type B micro USB connector	
Electrical characteristics		
Power supply	24 VDC $\pm$ 10 % / -20%	
Power consumption	2 VA (D-40/D-50) / 2.5 VA (D-70)	
Environmental specifications		
Storage temperature	-20 to +70°C	
Operating temperature	-10 to +55°C	
Humidity	95% at 40°C	
Installation category, degree of pollution	CAT III, 2	
Ports	D-40	D-50/D-70
Inputs	Digiware	Digiware RS485
Outputs	RS485	Ethernet

## References

<b>DIRIS Digiware</b>		<b>Part number</b>
D-40	Multipoint display, RS485 output	4829 <b>0199</b>
D-50	Multipoint display, Ethernet output	4829 <b>0201</b>
D-70	Multipoint display, Ethernet output + embedded web server	4829 <b>0202</b>
C-31	System interface	4829 <b>0101</b>
C-32	Repeater	4829 <b>0103</b>
<b>Power supply</b>		<b>Part number</b>
P15	Powers supply 100-240 VAC/ 24 VDC 15 W	4829 <b>0120</b>
<b>Digiware connection cables</b>		<b>Part number</b>
RJ45 cables for Digiware Bus	Length 0.06 m	4829 <b>0189</b>
	Length 0.10 m	4829 <b>0181</b>
	Length 0.20 m	4829 <b>0188</b>
	Length 0.50 m	4829 <b>0182</b>
	Length 1 m	4829 <b>0183</b>
	Length 2 m	4829 <b>0184</b>
	Length 5 m	4829 <b>0186</b>
	Length 10 m	4829 <b>0187</b>
50 m reel + 100 connectors		4829 <b>0185</b>
Termination for Digiware Bus (supplied with interfaces C and D)		4829 <b>0180</b>
USB configuration cable		4829 <b>0050</b>
<b>Single-point display</b>		<b>Part number</b>
DIRIS D-30 <sup>(1)</sup>	Single-point display for DIRIS Digiware I-4x	4829 <b>0200</b>

(1) DIRIS D-30 display characteristics

<b>Accessories</b>	<b>To be ordered in multiples of</b>	<b>Part number</b>
Fuse circuit breakers to protect voltage inputs (type RM) 1 pole + neutral	4	5701 <b>0017</b>
gG 10x38 0.5 A fuses	10	6012 <b>0000</b>

## Expert Services

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For further information, please contact your nearest SOCOMEC branch.





# DIRIS Digiware U

## Voltage acquisition module

Multi-circuit metering & measurement



diris-dw\_005\_a\_cat

DIRIS Digiware U-10/U-20/ U-30



Configuration with EasyConfig, see page 156.

### Function

The **DIRIS Digiware U** module measures voltage for the entire system. This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

### Advantages

- 1 single voltage measurement point for the entire system.
- Single point of protection for voltage measuring.
- A complete, dedicated solution:
  - metering,
  - monitoring voltage,
  - quality analysis of the supplied voltage.
- No hazardous voltage on cabinet doors.
- Adapted to all types of network: single-phase, three-phase.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > 1 single voltage measurement point for the entire system
- > Plug & Play
- > Compact



RJ45 (Digiware Bus) cables are available.

### Conformity to standards

- > IEC 61557-12



- > ISO 14025






- > UL



### Create your project

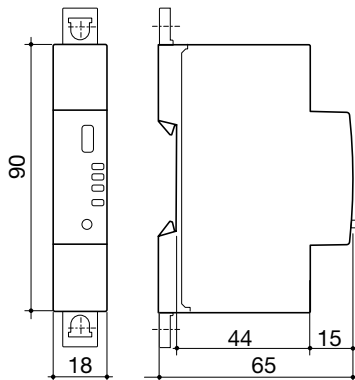
- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
	<b>U-10</b>	<b>U-20</b>	<b>U-30</b>
<b>DIRIS Digiware U</b>			
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN 50160)			•
<b>Alarms</b>			
On threshold			•
<b>History of average values</b>			
45 days (max)			•
<b>Format</b>			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

## Dimensions

### DIRIS Digiware U



diris-dw\_069\_a\_1\_x\_cat

## Specifications

### Measuring characteristics

Voltage measurement - DIRIS Digiware U	
Characteristics of the network measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65 Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300 VAC Ph/N
Accuracy of voltage measurement	Class 0.2
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.2 ... 2.5 mm <sup>2</sup> cable

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

## References

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.06 m	4829 0189
	Length 0.10 m	4829 0181
	Length 0.20 m	4829 0188
	Length 0.50 m	4829 0182
	Length 1 m	4829 0183
	Length 2 m	4829 0184
	Length 5 m	4829 0186
	Length 10 m	4829 0187
Reel 50 m + 100 connectors		4829 0185
Replacement reference: Digiware bus terminating resistor (supplied with C and D devices)		4829 0180
USB configuration cable		4829 0050

DIRIS Digiware		Reference
U-10	Metering	4829 0105
U-20	Monitoring	4829 0106
U-30	Analysis	4829 0102

Accessories		
Description of accessories	To be ordered in multiples of	Reference
Fuse holder to protect voltage inputs (type RM) 3 pole	4	5701 0018
gG 10x38 0.5 A fuses	10	6012 0000



# DIRIS Digiware S

Current acquisition module with integrated sensors

Multi-circuit metering & measurement



DIRIS Digiware S



Configuration with EasyConfig, see page 156.

## Function

DIRIS Digiware S current acquisition modules have 3 integrated current sensors for the measurement of electrical circuits up to 63 A.

Positioned directly above or below the protective devices, they are associated with the DIRIS Digiware U voltage measurement module to measure consumption, and to monitor the electrical installation and the quality of the power supply.

## Advantages

### Plug & Play

- Save wiring time: the current sensors are integrated in the module.
- Quick RJ45 connection between modules.
- Positioning possible upstream or downstream of the protective device.

### Multi-circuit

Multiple DIRIS Digiware S modules can be used within the measurement system enabling the monitoring of a large number of loads.

### Compact

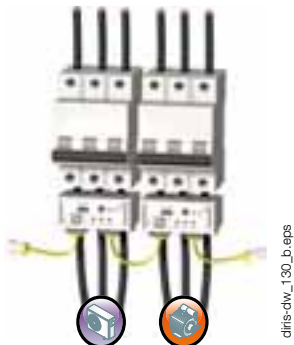
- A measurement module offering the best compactness/performance ratio of the market.
- Matches the pitch of the protective device.

### Accurate

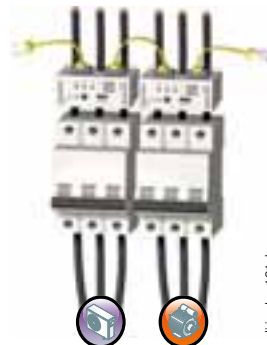
- Class 0.5 for active energy in accordance with the IEC 61557-12 standard, allowing accurate measurements over a wide range of currents.

## Functional diagram

### Downstream



### Upstream



The DIRIS Digiware S measurement module can be mounted upstream or downstream of the protective device solving issues of space constraints.

## The solution for

Distribution boards in:

- > Data center
- > Building
- > Industry



## Strong points

- > Plug & Play
- > Multi-circuit
- > Compact



RJ45 (Digiware Bus) cables are available.

## Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information, see page 12.

## Compliance with standards

- > IEC 61557-12






- > ISO 14025



- > UL 257746



Application	Current measurement module with integrated sensors		
	Metering	Analysis	Monitoring
			
<b>DIRIS Digiware S</b>	<b>S-130</b>	<b>S-135</b>	<b>S-Datacenter</b>
Number of current inputs	3	3	3
Base current $I_b$	10 A	10 A	10 A
Maximum current $I_{max}$	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
<b>Metering</b>			
$\pm$ kWh, $\pm$ kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
<b>Multi-measurement</b>			
$I_1, I_2, I_3, I_n, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance ( $I_{nba}, I_{nb}, I_{dir}, I_{inv}, I_{hom}$ )		•	
Phi, cos Phi, tan Phi		•	•
<b>Quality</b>			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to level 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
<b>Alarms</b>			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
<b>Trends</b>			
Average values		•	•
<b>Format</b>			
Width	54 mm	54 mm	54 mm

## Mounting accessories

Temporary MCB insert  
(for use during panel assembly)



diris-dw\_137\_a.eps

DIN rail and back plate mounting



diris-dw\_138\_a.eps

Cable tie tether

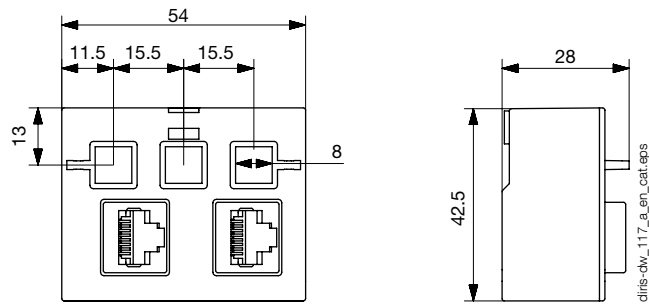


diris-dw\_139\_a.eps

# DIRIS Digiware S

Current acquisition module with integrated sensors

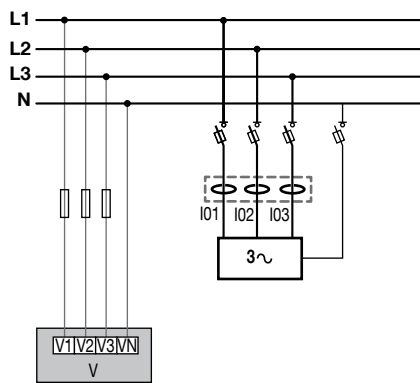
## Dimensions (mm)



## Connections

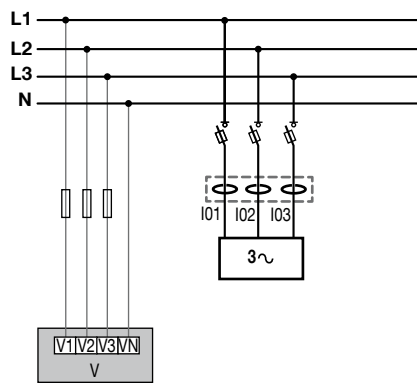
Current is measured by the integrated inputs I01, I02 and I03 on the DIRIS Digiware S module.

### 3P+N - 3CT

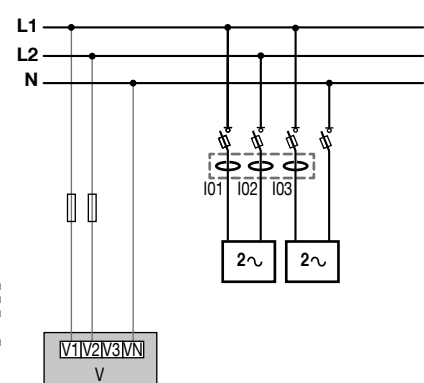


diris-dw\_118\_a\_x\_cat.ai

### 3P - 3CT



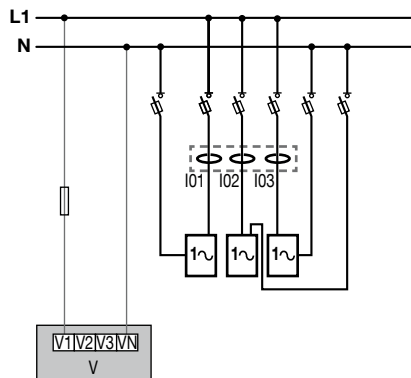
### 2P+N - 2CT & 2P+N - 1CT



diris-dw\_119\_a\_x\_cat.ai

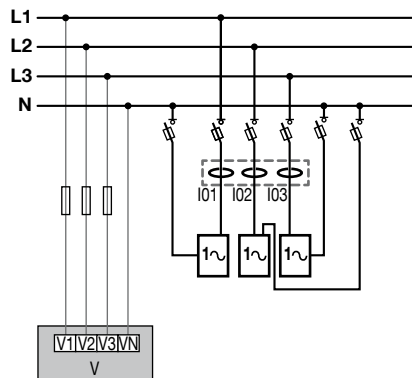
diris-dw\_120\_a\_x\_cat.ai

### 1P+N - 1CT (3x)



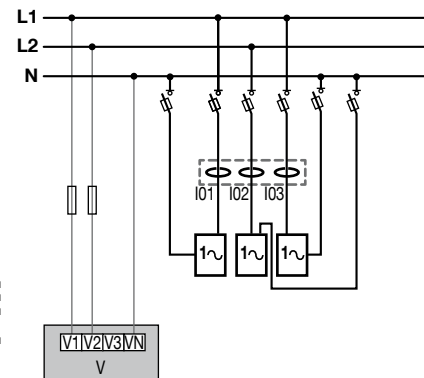
diris-dw\_121\_a\_x\_cat.ai

### 3P+N - 1CT (3x)



diris-dw\_122\_a\_x\_cat.ai

### 2P+N - 1CT (3x)



diris-dw\_123\_a\_x\_cat.ai



Fuses : 0.5 A gG/BS 88 2 A gG/0.5 A class CC



## Technical characteristics

### Measurement characteristics

Measurement of current	
Number of current inputs	3
Associated current sensors	Integrated in the product
Basic current I <sub>b</sub>	10 A
Maximum current I <sub>max</sub>	63 A
Current measurement accuracy	Class 0.5 IEC 61557-12
Measurement of energy	
Accuracy of active energy	Class 0.5 IEC 61557-12
Accuracy of reactive energy	Class 1 IEC 61557-12

### Mechanical characteristics

Casing type	DIN rail or back plate mounting
Casing protection index	IP20/IK08
Weight	63 g
Module power consumption	0.35 VA

### Communication specifications

Digiware BUS	
Function	Connection between DIRIS Digiware S, U, I modules and system interfaces
Cable type	Specific Socomec cable with RJ45 connections
USB	
Protocol	MODBUS RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware module
Connection	Type B micro USB connector

### Environmental specifications

Ambient operating temperature	-10 ... +55°C
Storage temperature	-25 ... +70°C
Operating humidity	40°C/95% RH
Operating altitude	< 2000 m

## References

DIRIS Digiware S	Reference	
S-130	Metering - 3 integrated current inputs	4829 0160
S-135	Analysis - 3 integrated current inputs	4829 0161
S-Datacenter	Single-phase monitoring - 3 integrated current inputs	4829 0162
Accessories	Reference	
DIN rail and back plate mounting clip (x10)	4829 0195	
Temporary MCB insert (x10)	4829 0196	

Digiware connection cables	Part number	
RJ45 cables for Digiware Bus	Length 0.06 m <sup>(1)</sup>	4829 0189
	Length 0.10 m	4829 0181
	Length 0.20 m	4829 0188
	Length 0.50 m	4829 0182
	Length 1 m	4829 0183
	Length 2 m	4829 0184
	Length 5 m	4829 0186
	Length 10 m	4829 0187
50 m reel + 100 connectors	4829 0185	
Termination for Digiware Bus (supplied with interfaces C and D)	4829 0180	
USB configuration cable	4829 0050	

(1) The RJ45 6 cm cables can be used on 3-pole or 4-pole protective devices.

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# DIRIS Digiware I

## Current acquisition modules

Multi-circuit metering & measurement



DIRIS Digiware I-3x



DIRIS Digiware I-4x



DIRIS Digiware I-6x



Configuration with EasyConfig, see page 156.

### Function

DIRIS Digiware I modules measure consumption and monitor the system at the closest point to the loads. The flexibility of these modules allows you to allocate the loads to be measured or monitored through independent current inputs.

For example:

- 1 three-phase load,
- 3 single-phase loads.

The RJ45 and RJ12 connections allow you to connect modules very quickly and to automatically configure connected current sensors:

- communication address,
- load type,
- sensor type and ratio,
- automatic rating and verification of current travel direction.

Wiring errors are also prevented and installation is simplified.

### Advantages

- RJ45 and RJ12 rapid connection.
- Available with 3, 4 or 6 inputs.
- Single-output or multi-output for maximum optimisation of the number of products.
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads.
- A complete, dedicated solution:
  - metering,
  - monitoring,
  - quality analysis.
- Compliant with standard IEC 61557-12, guaranteeing the quality and accuracy of the system:
  - class 0.5 for the 2 - 120% rated current global measurement chain In (with TE/TF current sensors).

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Multi-circuit
- > Plug and Play
- > Compact
- > High-precision measurement chain

### Integrated technologies



For more information, see page 12.

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



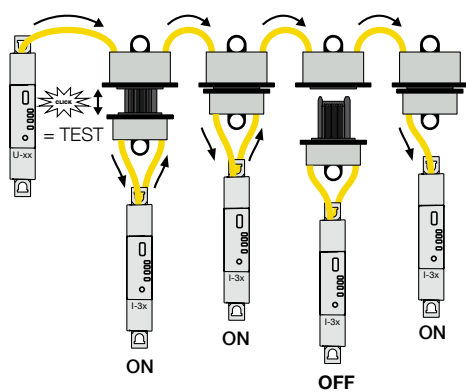
Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
<b>DIRIS Digiware I</b>	<b>I-30</b>	<b>I-31</b>	<b>I-33</b>	<b>I-35</b>	<b>I-43</b>	<b>I-45</b>	<b>I-60</b>	<b>I-61</b>
Number of current inputs	3	3	3	3	4	4	6	6
<b>Metering</b>								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
<b>Multi-measurement</b>								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, linv, lhom, lnb)				•		•		
Phi, cos Phi, tan Phi				•		•		
<b>Quality</b>								
THDi1, THDi2, THDi3, THDIn			•	•	•	•		
Individual harmonics I (up to level 63)				•		•		
Overcurrents				•		•		
<b>Alarms</b>								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
<b>History of average values</b>								
45 days (max)				•		•		
<b>Format</b>								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

## Accessories

### Digiware plug-in connector

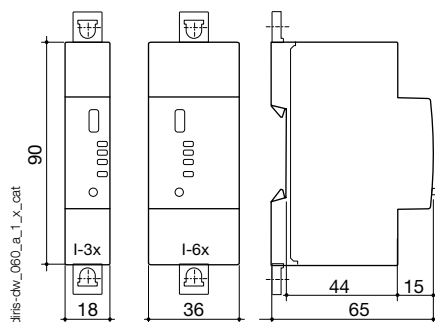
With the Digiware plug-in connector you can disconnect a DIRIS Digiware module from the Bus while ensuring the DIRIS Digiware system continues to run downstream.

This accessory is particularly useful in applications with retractable drawers or critical applications such as in data centres.

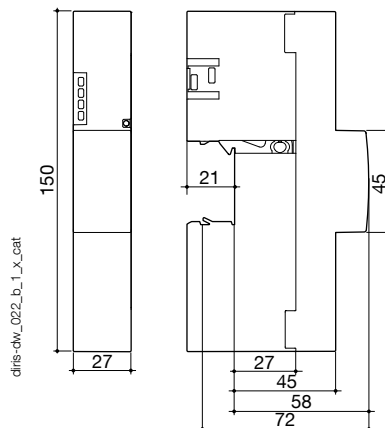


## Dimensions

DIRIS Digiware I-3x / I-6x



DIRIS Digiware I-4x



## Connections

### Associated current sensors

Various types of current sensors are connected to the DIRIS Digiware: closed (TE), split core (TR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware system automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

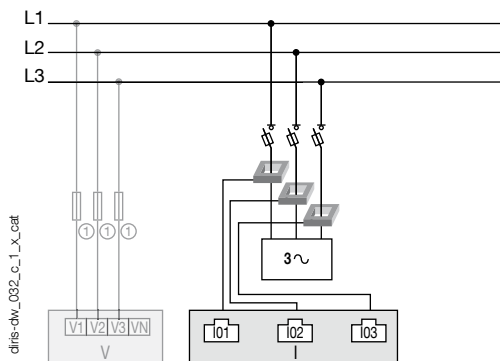
For more information: see page 46.

## Network and connection examples

### I3x

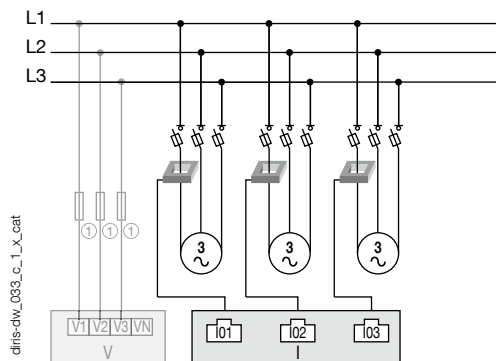
#### Three-phase

3P - 3CT (1 three-phase load)



#### Three-phase

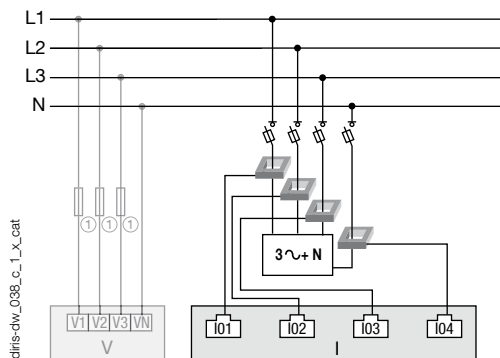
3P - 1CT (3 balanced, three-phase loads)



### I4x

#### Three phase + neutral

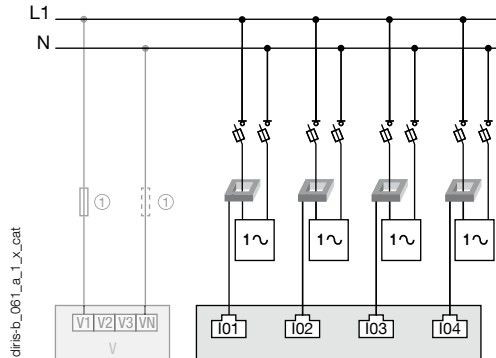
3P+N - 4CT (1 three-phase load + Neutral measured)



1. 0.5 A gG / 0.5 A class CC fuses.

#### Single-phase

1P+N-1CT (4 single-phase loads)



CT: Current sensor      3~ Load

## Specifications

### Measuring characteristics

Current measurement - DIRIS Digiware I	
Number of current inputs	I-3x: 3 / I-45: 4 / I-6x: 6
Associated current sensors	Solid TE, split-core TR, flexible TF current sensors
Accuracy of current measurement	0.2 DIRIS Digiware class only Class 0.5 with TE or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Inputs - DIRIS Digiware I-45	
Number of inputs	2
Type / Power supply	Non-insulated input, internal polarisation 12 VDC max, 1mA
Input functions	Logic status, pulse meter, multi-tariff
Connection	Removable screw terminal block, stranded or solid 0.14-1.5 mm <sup>2</sup> cable

Outputs - DIRIS Digiware I-45	
Number of outputs	2
Relay type	230 VAC ±15 % - 1 A
Function	Configurable alarm (current, power, etc.) when threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, stranded or solid 0.2-2.5 mm <sup>2</sup> cable

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

## References

DIRIS Digiware	Reference
I-30 Metering - 3 current inputs	4829 0110
I-31 Metering + load curve - 3 current inputs	4829 0111
I-33 Monitoring - 3 current inputs	4829 0128
I-35 Analysis - 3 current inputs	4829 0130
I-43 Monitoring - 2 inputs/ 2 outputs - 4 current inputs	4829 0129
I-45 Analysis - 2 inputs/ 2 outputs - 4 current inputs	4829 0131
I-60 Metering - 6 current inputs	4829 0112
I-61 Metering + load curve - 6 current inputs	4829 0113

Accessories	Reference
Digiware x 5 plug-in connector	4829 0605

Digiware connection cables	Reference	
RJ45 cables for Digiware Bus	Length 0.10 m	4829 0181
	Length 0.20 m	4829 0188
	Length 0.50 m	4829 0182
	Length 1 m	4829 0183
	Length 2 m	4829 0184
	Length 5 m	4829 0186
	Length 10 m	4829 0187
	Reel 50 m + 100 connectors	4829 0185
Digiware bus terminating resistor (supplied with C and D devices)	4829 0180	
USB configuration cable	4829 0050	

(1) DIRIS D-30 display characteristics see page 30.

## Expert Services

### Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, **audit** your system, **commission** selected equipment and **train** your staff on its use.

For further information, please contact your nearest SOCOMEC branch.





# TE sensors

## Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors

new



TE solid sensors

### Function

TE smart **current sensors** measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TE current sensors cover the full current range of 5 to 2000 A, with 7 references. TE solid current sensors can be connected to DIRIS Digiware and DIRIS B-30 via a rapid RJ12 connection.

Numerous accessories are available to aid the installation of sensors in any type of cabinet.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

#### Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TE current sensors) from 2 to 120% of the nominal current  $I_n$ .

#### Installation

- The TE solid sensor range is specially designed for new installations, and has the same pitch as the most common protective devices.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Installation

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



**Mounting**

Linear assembly with the protective devices  
 TE-25 / TE-35 / TE-45 / TE-55 / TE-90



DIN rail mounted



TE-90 clamps



Staggered assembly  
 TE-18 / TE-35 / TE-45 / TE-55



Back-plate mounting



Cable mounting



Bar mounting







**Connections**

TE / TR / TF current sensors



### Mounting accessories

Mounting accessories delivered with TE sensors:

Switch mounting		TE-18	TE-25	TE-35 TE-45 TE-55	TE-90
	DIN rail and back-plate	1 pc			2 pcs
	DIN rail		2 pcs	2 pcs	
	Back-plate		4 pcs	4 pcs	6 pcs
	Busbar			2 pcs	

diris-t\_042\_a - 043\_a - 044\_a - 045\_a

### Compatible accessories

#### Adapter for CT with 5A secondary

diris-t\_041\_a\_1\_cat



- With this adapter you can use a current transformer with a 5 A output on the DIRIS Digiware and DIRIS B-30. For use with standard 5 A sensors for measuring applications of > 2000 A. The dimensions are the same as the TE-18.

#### Coupling link

diris-t\_020\_a\_1\_cat



- Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.



#### Sealable cover

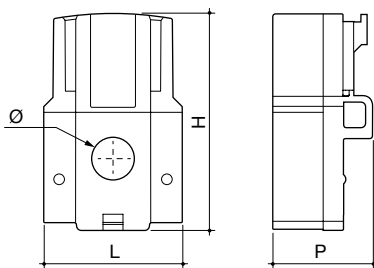
- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/TF current sensors.



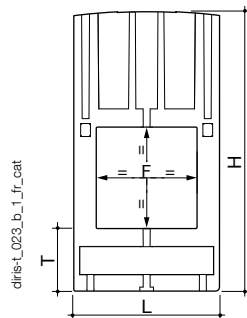
### Dimensions (mm)

#### TE - Solid current sensors

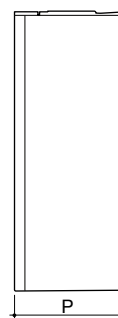
TE-18



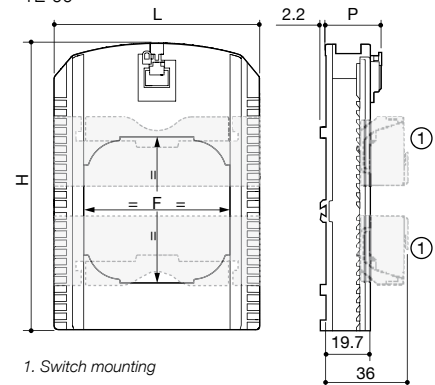
TE-25 / TE-35 / TE-45 / TE-55



diris-t\_023\_b\_1\_fr\_cat



TE-90



1. Switch mounting

diris-t\_047\_a\_1\_fr\_cat

Model	Nominal current range (A)	Actual coverage range (A)	Pitch (mm)	H x W x D (mm)	F (mm)	T (mm)
TE-18	5 ... 20 / 25 ... 63	0.1 ... 24 / 0.5 ... 75	18	45 x 28 x 20	8.6	-
TE-25	40 ... 160	0.8 ... 192	25	65 x 25 x 32.5	13.5 x 13.5	17.5
TE-35	63 ... 250	1.26 ... 300	35	71 x 35 x 32.5	21 x 21	17.5
TE-45	160 ... 630	3.2 ... 756	45	86 x 45 x 32.5	31 x 31	19.5
TE-55	400 ... 1000	8 ... 1200	55	100 x 55 x 32.5	41 x 41	21.5
TE-90	600 ... 2000	12 ... 2400	90	126 x 90 x 24.6	64 x 64	-

## Specifications

TE - Solid current sensors							
Model	TE-18	TE-18	TE-25	TE-35	TE-45	TE-55	TE-90
Nominal current range $I_n$ (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A)	0.1 ... 24	0.5 ... 75	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Max. current (A)	24	75.6	192	300	756	1200	2400
Weight (g)	24	24	69	89	140	187	163
Max. voltage (phase/neutral)	300 V						
Rated withstand voltage	3 kV						
Frequency	50/60 Hz						
Intermittent overload	10 x $I_n$ over 1 sec						
Measurement category	CAT III						
Protection degree	IP30 / IK06						
Operating temperature	-10 ... +70°C						
Storage temperature	-25 ... +85°C						
Relative humidity	95% RH non-condensing						
Altitude	< 2000 m						
Connection	Socomec RJ12 cable						

## References

Model	Nominal current range (A)	Actual coverage range (A)	Pitch (mm)	Reference
TE-18	5 ... 20	0.1 ... 24	18	4829 0500
TE-18	25 ... 63	0.5 ... 75	18	4829 0501
TE-25	40 ... 160	0.8 ... 192	25	4829 0502
TE-35	63 ... 250	1.26 ... 300	35	4829 0503
TE-45	160 ... 630	3.2 ... 756	45	4829 0504
TE-55	400 ... 1000	8 ... 1200	55	4829 0505
TE-90	600 ... 2000	12 ... 2400	90	4829 0506

Accessories	Reference
Coupling link (20 linear assembly parts and 10 for staggered assembly)	4829 0598
CT/5A adapter (measurements of >2000 A) (max primary current 10000 A/5/A)	4829 0599
Sealable caps (20 pieces)	4829 0600

RJ12 connection cables	Cable length (m)								
	0.1	0.2	0.3	0.5	1	2	5	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



# TR/iTR sensors

## Split-core AC current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors



TR Split-core current sensors

### Function

The **split-core current sensors** in the **TR** and **iTR** ranges enable the current of an electrical installation to be measured. Used with power monitoring device DIRIS Digiware, DIRIS A-40, DIRIS B, they make it possible to perform measurements between 25 and 600 A, with guaranteed accuracy. The RJ12 connection provides quick connections, and the integrated intelligence prevents any configuration errors.

The sensors in the **iTR** range revolutionise the world of measurement and provide access to VirtualMonitor status monitoring technologies and to AutoCorrect automatic configuration.

### Advantages of the TR and iTR ranges

#### Smart sensors

- Sensors with an extended operational range.
- Automatic detection of rating.
- Secured disconnection of load.
- Quick connection via RJ12 and identification of cable by colour code.

#### Accurate

- Measurement precision guaranteed in acc. with standard IEC 61557-12 : class 0.5 (iTR) or 1 (TR) for the global measuring chain from 2 to 120% of In.

### Unique advantages of the iTR range

#### VirtualMonitor technology

VirtualMonitor technology makes it possible to monitor the status of protective devices:

- Throughout your electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring.

#### AutoCorrect technology

AutoCorrect technology guarantees that your measurement system will function properly through:

- Automatic installation verification (by checking phase sequencing and automatic configuration of the direction of current).
- Correction of errors.

### The solution for

- > Retrofit applications
- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Smart sensors
- > PreciSense technology: Global accuracy in accordance with the IEC 61557-12 standard.
- > Easy installation and configuration.

### Integrated technologies<sup>(1)</sup>



<sup>(1)</sup> AutoCorrect and VirtualMonitor are only available with iTR sensors.

For more information, see page 12.

### Compliance with standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



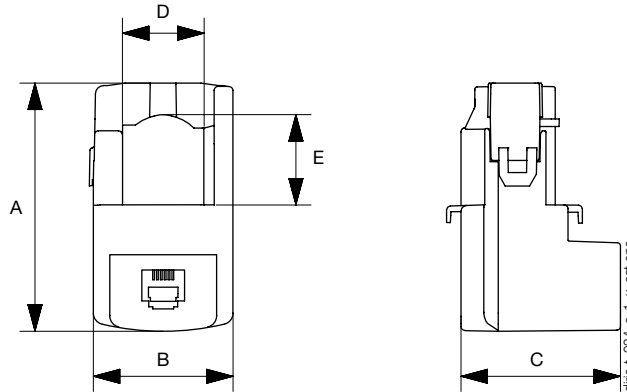
## Installation

Cable mounting



## Dimensions

TR-10 / TR-14 / TR-21 / TR-32



Model	Nominal current range (A)	Actual coverage range (A)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Ø (mm)
TR/iTR-10	25 ... 63	0.5 ... 75.6	44	26	28	-	-	10
TR/iTR-14	40 ... 160	0.8 ... 192	67	29	28	14	15	14
TR/iTR-21	63 ... 250	1.26 ... 300	65	37	43	21	23	21
TR/iTR-32	160 ... 600	3.2 ... 720	86	53	47	32	33	32

## Technical characteristics

Model	TR-10	iTR-10	TR-14	iTR-14	TR-21	iTR-21	TR-32	iTR-32
Nominal current range $I_n$ (A)	25 ... 63		40 ... 160		63 ... 250		160 ... 600	
Actual coverage range (A)	0.5 ... 75.6		0.8 ... 192		1.26 ... 300		3.2 ... 720	
Max. current (A)	75.6		192		300		720	
Weight (g)	74		117		211		311	
Max. voltage (phase/neutral)	300 V							
Rated withstand voltage	3 kV							
Frequency	50/60 Hz							
Intermittent overload	10 x $I_n$ for 1 s							
Measurement category	CAT III							
Global class used with Diris Digiware/A-40/B-10/B-30	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5
Protection degree	IP20 / IK07							
Operating temperature range	-10 to +70°C						-10°...+55°C	
Storage temperature range	-25 to +85°C							
Relative humidity	95% RH non-condensing							
Altitude	< 2000 m							
Connection	Socomec RJ12 cable							

## References

Model	Nominal current range (A)	Actual coverage range (A)	Ø (mm)	Part number
TR-10	25 ... 63	0.5 ... 75	10	4829 0555
TR-14	40 ... 160	0.8 ... 192	14	4829 0556
TR-21	63 ... 250	1.26 ... 300	21	4829 0557
TR-32	160 ... 600	3.2 ... 720	32	4829 0558

Model	Nominal current range (A)	Actual coverage range (A)	Ø (mm)	Part number
iTR-10	25 ... 63	0.5 ... 75	10	4829 0655
iTR-14	40 ... 160	0.8 ... 192	14	4829 0656
iTR-21	63 ... 250	1.26 ... 300	21	4829 0657
iTR-32	160 ... 600	3.2 ... 720	32	4829 0658

RJ12 connection cables	Cable length (m)								
	0.1	0.2	0.3	0.5	1	2	5	10	50 m reel + 100 connectors
Number of cables	Part number	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-





# TF sensors

## Flexible current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors



TF Flexible current sensors

diris-t\_016\_a-1\_cat

### Function

TF smart **current sensors** measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TF current sensors cover the full current range of 150 to 6000 A, with 3 references. TF flexible current sensors can be connected to DIRIS Digiware and DIRIS B-30 via a rapid RJ12 connection.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

#### Installation

- The TF flexible sensor range is specially designed for existing installations restricted by strict integration constraints or with high-intensity currents.

#### Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TF current sensors) from 2 to 120% of the nominal current  $I_n$ .

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Installation

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)

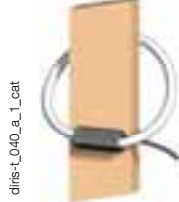


## Mounting

Cable mounting



Bar mounting



## Accessories

Sealable cover

- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/TF current sensors.



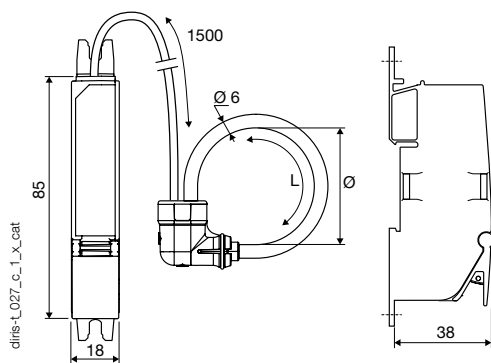
## Connections

TE / TR / TF current sensors

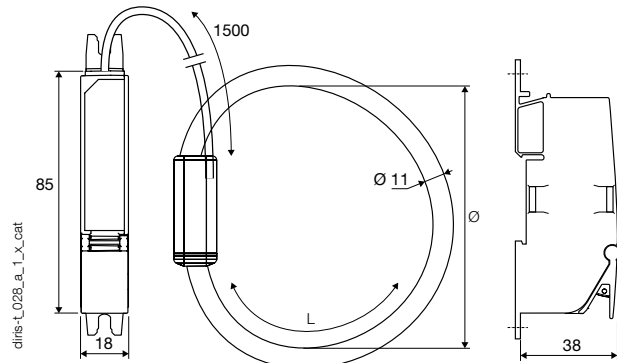


## Dimensions

TF-55



TF-120 / TF-300



Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (mm)	L = Loop length (mm)
TF-55	150 ... 600	3 ... 720	55	182
TF-120	500 ... 2000	10 ... 2400	120	376
TF-300	1600 ... 6000	32 ... 7200	300	942

## Specifications

Model	TF-55	TF-120	TF-300
Nominal current range $I_n$ (A)	150 ... 600	500 ... 2000	1600 ... 6000
Actual coverage range (A)	3 ... 720	10 ... 2400	32 ... 7200
Weight (g)	114	142	220
Max. voltage (phase/neutral)	600 V		
Rated withstand voltage	3.6 kV		
Frequency	50 / 60 Hz		
Intermittent overload	10 x $I_n$ for 1 s		
Measurement category	CAT III		
Protection degree	IP30 / IK07		
Operating temperature	-10 ... +70°C		
Storage temperature	-25 ... +75°C		
Relative humidity	95% RH non-condensing		
Altitude	< 2000 m		
Connection	Socomec cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C		

## References

Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (mm)	Reference
TF-55	150 ... 600	3 ... 720	55	4829 0570
TF-120	500 ... 2000	10 ... 2400	120	4829 0571
TF-300	1600 ... 6000	32 ... 7200	300	4829 0572

### Accessories

Accessories	Reference
Sealable caps (20 pieces)	4829 0600

RJ12 connection cables	Cable length (m)								
	0.1	0.2	0.3	0.5	1	2	5	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



# DIRIS Digiware Udc

## DC voltage acquisition module

Multi-circuit metering & measurement

**new**



DIRIS Digiware U-31dc/U-32dc



DIRIS Digiware U500dc/U1000dc/U1500dc adaptor



Configuration with EasyConfig, see page 156.

### Function

The **DIRIS Digiware U-3xdc** module measures DC voltage for the entire system. It measures up to 180 VDC with a direct connection and is therefore compatible with typical nominal voltages (24 VDC, 48 VDC...).

The voltage adaptors make the system compatible with all voltage levels up to 1650 VDC to respond to the needs of all applications.

The RJ45 Digiware Bus transmits voltage measurements along with power supply and communication to all connected products.

### Advantages

#### Single voltage measurement

- 1 single voltage measurement point for the entire system.
- Single point of protection for the voltage measurement.
- No hazardous voltage on panel doors.

#### Flexible

- The voltage adaptors make the measurement system compatible with all DC electrical networks.

#### Plug & Play

- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config configuration software.

### The solution for

- > Data centre
- > Telecommunication
- > Renewable power
- > Transportation



### Strong points

- > Centralisation of voltage measurement
- > Flexible
- > Plug & Play



RJ45 (Digiware Bus) cables are available.

### Compliance with standards

- > IEC 61557-12








- > ISO 14025



- > UL E257746

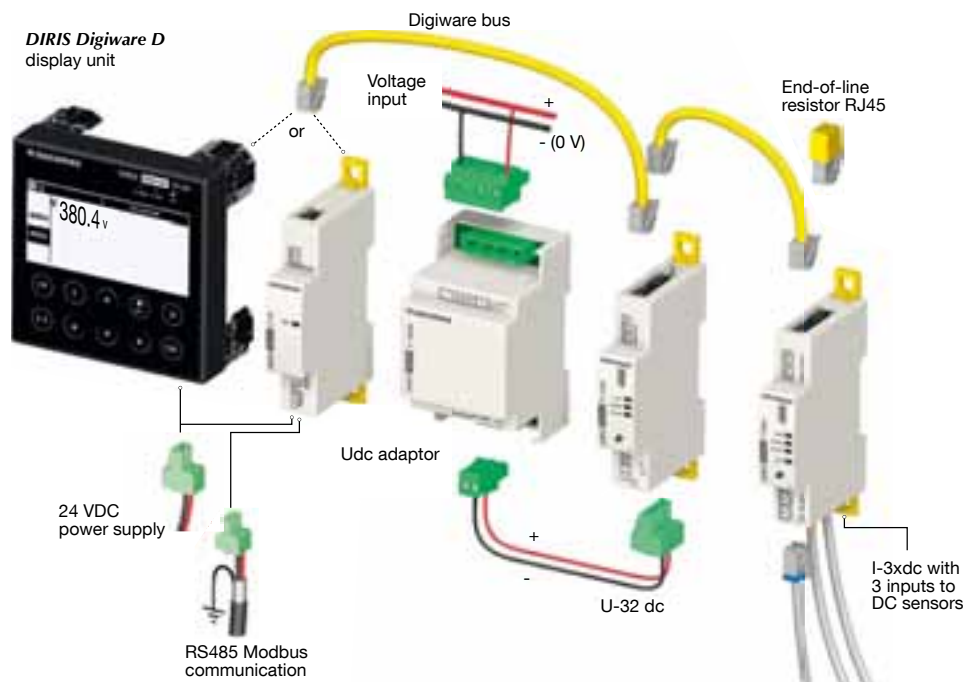


Application	DC voltage measurement	
		
<b>DIRIS Digiware Udc</b>	<b>U-31dc</b>	<b>U-32dc</b>
<b>Nominal voltage range</b>	24 ... 48 VDC	60 ... 150 VDC
<b>Measuring range (min-max)</b>	19.2 ... 60 VDC	48 ... 180 VDC
<b>Multi-measurement</b>		
DC voltage (VDC)	•	•
<b>Power quality</b>		
V ripple (voltage ripple)	•	•
V <sub>rms</sub>	•	•
<b>Alarms</b>		
Thresholds and combinations	•	•
<b>Trends</b>		
Average values	•	•
<b>Format</b>		
Width/number of modules	18 mm / 1	

Application	DC voltage adaptors		
			
<b>DIRIS Digiware Udc</b>	U500dc	U1000dc	U1500dc
<b>Max. voltage range</b>	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
<b>Association</b>			
U-32dc	•	•	•
<b>Format</b>			
Width/number of modules	54 mm / 3		

## Connections

### Connecting DIRIS Digiware DC adaptors

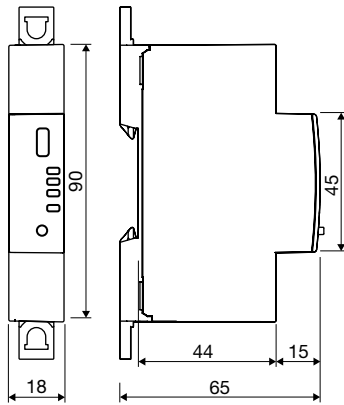


diris-dw\_132\_en.ai

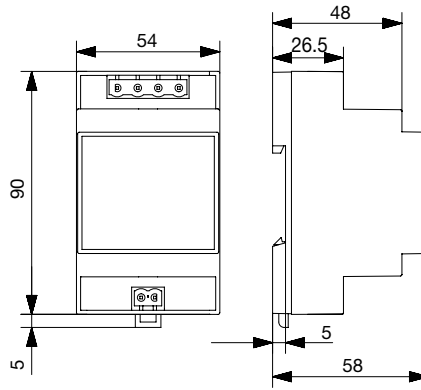
## Dimensions (mm)

### DIRIS Digiware U-3xdc

### DIRIS Digiware adaptors U500dc/U1000dc/U1500dc



diris-dw\_106\_a\_1\_cat



diris-dw\_115\_a\_1\_x\_cat

## Technical characteristics

### Measurement characteristics

DC voltage measurement - DIRIS Digiware U	
Features of the network measured (min-max)	Without adaptors: U-31dc : 19.2 - 60 VDC U-32dc : 48 - 180 VDC  With adaptor: U-32dc + adaptor U500dc : 200 - 600 VDC U-32dc + adaptor U1000dc : 400 - 1200 VDC U-32dc + adaptor U1500dc : 1200 - 1650 VDC
Voltage measurement accuracy without adaptor	Class 0.5 IEC 61557-12
Voltage measurement accuracy with adaptor	Class 1 IEC 61557-12
Connection without adaptor	Removable screw terminal block, 2 positions, stranded or solid 0.2 - 2.5 mm <sup>2</sup> cable
Connection with adaptor	Adaptor input: removable screw terminal block, 2 positions, stranded or solid 0.2 ... 2.5 mm <sup>2</sup> cable Adaptor output: removable screw terminal block, 2 positions, stranded or solid 0.2 ... 2.5 mm <sup>2</sup> cable
Module power consumption	0.6 VA

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	64 g

### Environmental specifications

Ambient operating temperature	-10 to +70°C
Storage temperature	-25 to +70°C
Operating humidity	55 °C / 97% HR
Operating altitude	< 2000 m

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

## References

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.06 m	4829 <b>0189</b>
	Length 0.10 m	4829 <b>0181</b>
	Length 0.20 m	4829 <b>0188</b>
	Length 0.50 m	4829 <b>0182</b>
	Length 1 m	4829 <b>0183</b>
	Length 2 m	4829 <b>0184</b>
	Length 5 m	4829 <b>0186</b>
	Length 10 m	4829 <b>0187</b>
	50 m reel + 100 connectors	4829 <b>0185</b>
Termination for Digiware Bus (supplied with interfaces C and D)		4829 <b>0180</b>
USB configuration cable		4829 <b>0050</b>

DIRIS Digiware		Part number
U-31dc	Voltage measurement 19.2 ... 60 VDC	4829 <b>0150</b>
U-32dc	Voltage measurement 48 ... 180 VDC	4829 <b>0151</b>
U500dc	Voltage adaptor 200 ... 600 VDC	4829 <b>0153</b>
U1000dc	Voltage adaptor 400 ... 1200 VDC	4829 <b>0154</b>
U1500dc	Voltage adaptor 1200 ... 1650 VDC	4829 <b>0155</b>





# DIRIS Digiware Idc

Direct current acquisition module

Multi-circuit metering & measurement

**new**



DIRIS Digiware I-30dc/I-35dc



Configuration with EasyConfig, see page 156.

## Function

DIRIS Digiware Idc modules measure consumption and monitor the DC electrical installation. Several Idc modules can be used within the same system, allowing the measurement of a large number of DC circuits. They are associated with DIRIS Digiware Udc voltage measurement modules.

Direct current is measured using external sensors connected by RJ12-Molex cables, available in multiple lengths. These cables are colour coded (brown, orange, white) to easily identify circuits.

## Advantages

### Multi-circuit

- Measurement of up to 3 DC circuits per Idc module.
- Multiple Idc modules can be included. This allows the measurement of a large number of DC loads simultaneously.

### Flexible

- Adapted to suit metering and quality analysis of the direct current.
- A complete range of solid core and split core DC current sensors from 50 to 5000 A.

The associated DIRIS Digiware D screen and the embedded webserver Webview can display electrical measurements from both DIRIS Digiware AC and DC systems simultaneously.

### Plug & Play

- Quick RJ45 connection between modules and RJ12-Molex to current sensors.
- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config software.

### Compact

One module wide to address space constraints inside electrical panels.

## The solution for

- > Data centre
- > Telecommunication
- > Renewable power
- > Transportation



## Strong points

- > Multi-circuit
- > Plug & Play
- > Flexible
- > Compact



RJ45 (Digiware Bus) cables are available.

## Compliance with standards

- > IEC 61557-12





- > ISO 14025



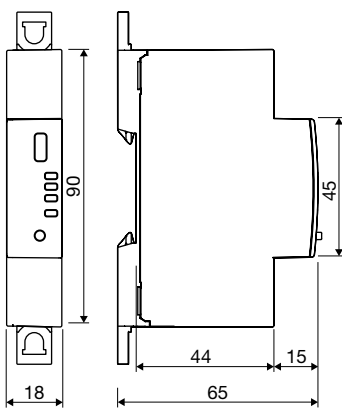
- > UL E257746



Application	Direct current (DC) measurement modules	
		
<b>DIRIS Digiware Idc</b>	<b>I-30dc</b>	<b>I-35dc</b>
Number of current inputs	3	3
<b>Metering</b>		
± kWh	•	•
Load curves		•
<b>Multi-measurement</b>		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
<b>Measurement of current quality</b>		
I ripple (current ripple)		•
I rms		•
<b>Alarms</b>		
Thresholds and combinations		•
<b>Trends</b>		
Average values		•
<b>Format</b>		
Width/number of modules	18 mm / 1	

## Dimensions (mm)

### DIRIS Digiware Idc

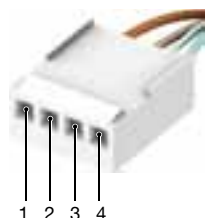


diris-dw\_106\_a\_1\_cat

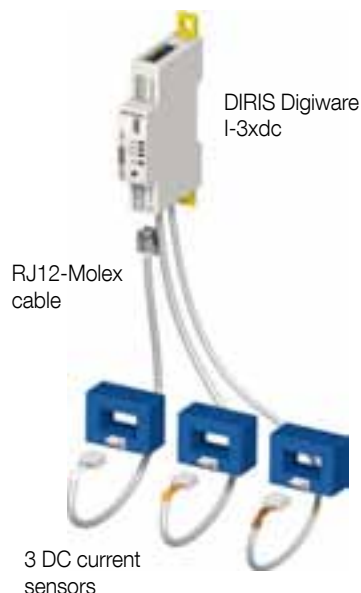
## Connections

DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

- Open-loop Hall effect sensors
- Solid core or split core.
- Power supply voltage:  $\pm 15$  V.
- Power supply current:  $\pm 25$  mA depending on sensor.
- Output voltage:  $\pm 4$  V.
- 4-point male Molex terminal strip.
- Measuring range: 16 to 6000 A.
- Category III overvoltage.



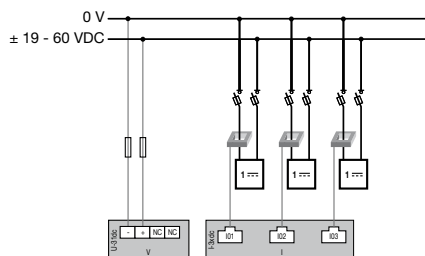
- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (O)



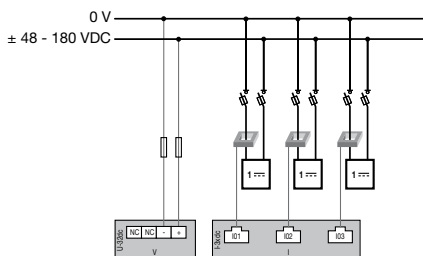
## Network and connection examples

### Measurement of 3 DC loads

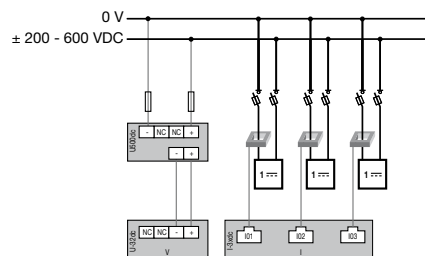
**DIRIS Digiware U-31dc**  
Voltage (VDC): 19 - 60 V



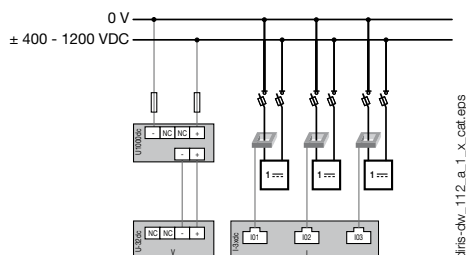
**DIRIS Digiware U-32dc**  
Voltage (VDC): 48 - 180 V



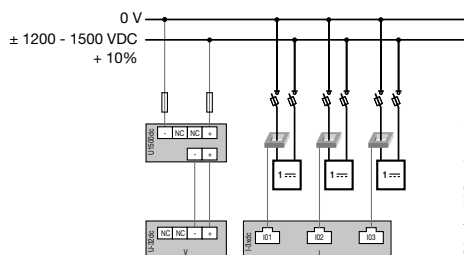
**DIRIS Digiware U-32dc + adaptor U500dc**  
Voltage (VDC): 200 - 600 V



**DIRIS Digiware U-32dc + adaptor U1000dc**  
Voltage (VDC): 400 - 1200 V



**DIRIS Digiware U-32dc + adaptor U1500dc**  
VDC voltage: 1200 - 1500 V +10%



1. Fuse: 2A gPV

DC current sensor

DC load

## Technical characteristics

### Measurement characteristics

DC current measurement - DIRIS Digiware Idc	
Number of current inputs	3
Associated current sensors	Open-loop Hall effect
Accuracy of current measurement	Class 0.5
Precision measurement of power and energy	With U-31dc/U-32dc only: class 1 With U-32dc + adaptor: class 2
Connection	Specific Socomec cable with RJ12-Molex connectors
Power consumption of module	2 VA

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	69 g

### Environmental specifications

Ambient operating temperature	-10 to +70°C
Storage temperature	-25 to +70°C
Operating humidity	55 °C / 97% HR
Operating altitude	< 2000 m

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

## References

DIRIS Digiware I-3xdc		Part number
I-30dc	Metering - 3 current inputs	4829 0156
I-35dc	Analysis - 3 current inputs	4829 0157
RJ12-Molex cables		
Number of cables	Length of cables	Part number
3	0.3 m	4829 0782
3	0.5 m	4829 0783
3	1 m	4829 0784
3	2 m	4829 0785
1	5 m	4829 0786

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.06 m	4829 0189
	Length 0.10 m	4829 0181
	Length 0.20 m	4829 0188
	Length 0.50 m	4829 0182
	Length 1 m	4829 0183
	Length 2 m	4829 0184
	Length 5 m	4829 0186
	Length 10 m	4829 0187
50 m reel + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

## Expert Services

### Do you require services for your metering system?

No problem for our "Expert Services" team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use.

For further information, please contact your nearest Socomec branch.



# DC current sensors

Associated with DIRIS Digiware DC

Current sensors

**new**



tore\_072\_a.eps

Solid-core sensors 50 ... 600 A



tore\_071\_a.eps

Split-core sensors 50 ... 500 A



tore\_068\_a.eps

Solid-core sensors 850 ... 5000 A



tore\_066\_a.eps

Split-core sensors 800 ... 2000 A

## The solution for

- > Data centre
- > Telecommunication
- > Renewable power
- > Transportation



## Strong points

- > Plug & Play
- > Wide selection of ratings
- > Simplified installation

## Compliance with standards

- > IEC 61010-1



- > UL



## Function

The **DC current sensors** measure the DC load currents of an electrical installation and transmit information to the DIRIS Digiware Idc measurement modules via an RJ12 to Molex cable on the sensor side.

The range comprises solid-core and split-core sensors ranging from 50 to 5000 A in various sizes allowing them to be used in new or existing electrical installations.

Up to 3 different DC sensors can be connected to the same DIRIS Digiware Idc module.

## Advantages

### Plug & Play

- A quick RJ12 connection makes wiring easy and reliable.
- Fast configuration of the sensor's rating.

### Flexible

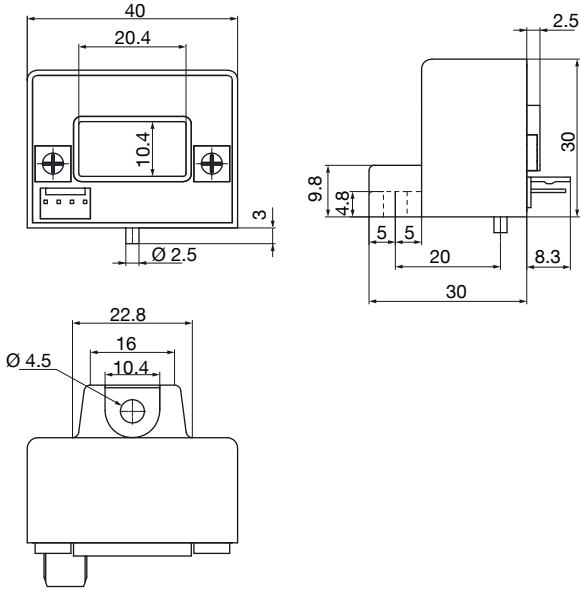
- A complete range of solid-core and split-core sensors from 50 to 5000 A designed for new or existing electrical installations.

### Installation

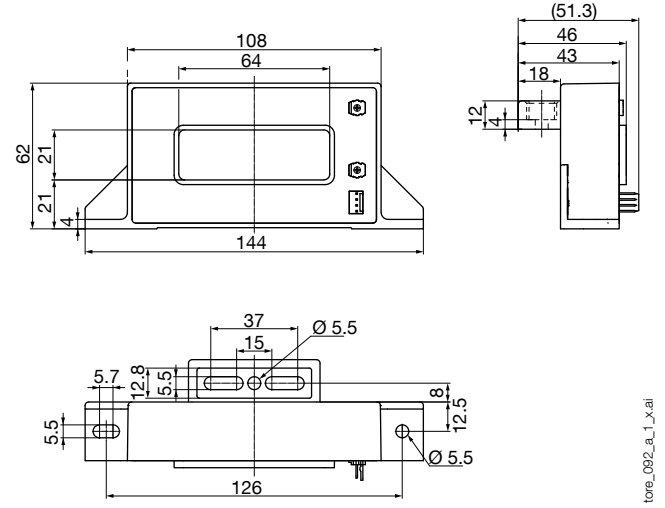
- Easy to install.
- Ideal for installations with limited space available.
- Only 4 different frame sizes cover a wide measurement range.
- Colour-coded cables for ease of identification, and to prevent wiring errors.

## Dimensions (mm)

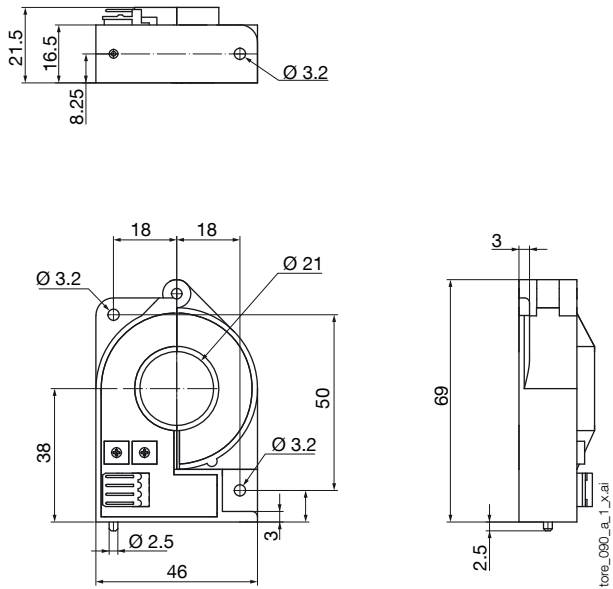
Solid-core sensors 50 ... 600 A (frame size 1)



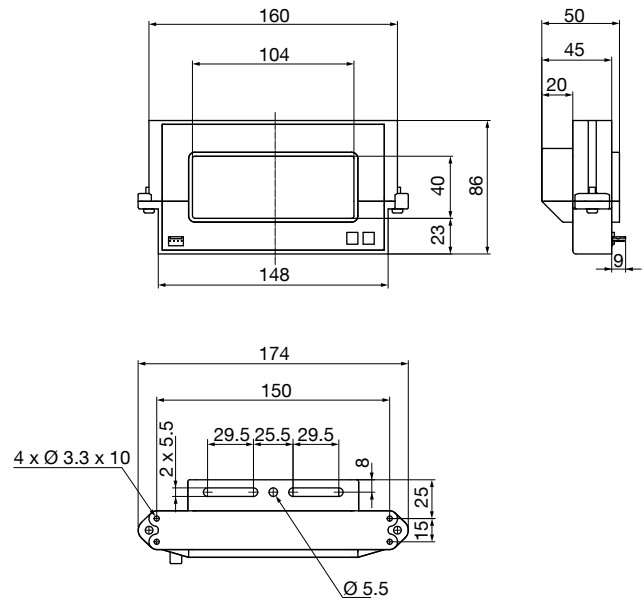
Solid-core sensors 850 ... 5000 A (frame size 2)



Split-core sensors 50 ... 500 A (frame size 1)



Split-core sensors 800 ... 2000 A (frame size 2)





# DC current sensors

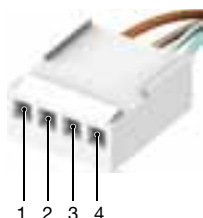
Associated with DIRIS Digiware DC

## Connections

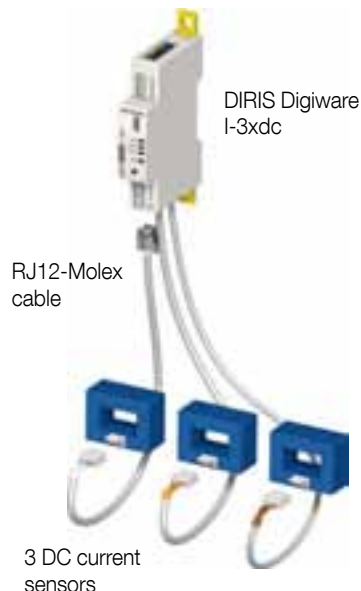
DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

The DC current sensors have the following technical characteristics:

- Open-loop Hall effect sensors
- Solid-core or split-core.
- Power supply voltage:  $\pm 15$  V.
- Power supply current:  $\pm 25$  mA depending on the sensor.
- Output voltage:  $\pm 4$  V.
- 4-point male Molex terminal strip.
- Measurement range: 16 to 6000 A.
- Category III overvoltage.



- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



## Technical characteristics

Type of current sensor	Open-loop Hall effect
Connection	Specific Socomec cable with RJ12-Molex connectors
Accuracy of current measurement	Solid-core sensors: 50 ... 600 A: < 1% Solid-core sensors: 850 ... 5000 A: < 1% Split-core sensors: 50 ... 500 A: < 2% Split-core sensors: 800 ... 2000 A: < 2%

Weight	Solid-core sensors 50 ... 600 A	60 g
	Solid-core sensors 850 ... 5000 A	450 g
	Split-core sensors 50 ... 500 A	80 g
	Split-core sensors 800 ... 2000 A	590 g
Operating temperature	Solid-core sensors 50 ... 600 A	-10 ... +80°C
	Solid-core sensors 850 ... 5000 A	-25 ... +85°C
	Split-core sensors 50 ... 500 A	-10 ... +70°C
	Split-core sensors 800 ... 2000 A	-10 ... +70°C
Storage temperature	Solid-core sensors 50 ... 600 A	-25 ... +80°C
	Solid-core sensors 850 ... 5000 A	-25 ... +85°C
	Split-core sensors 50 ... 500 A	-20 ... +85°C
	Split-core sensors 800 ... 2000 A	-25 ... +85°C

## References

DC current sensors	Reference
<b>Solid-core sensors (frame size 1)</b>	
50 A	4829 0700
100 A	4829 0701
200 A	4829 0702
300 A	4829 0703
400 A	4829 0704
500 A	4829 0705
600 A	4829 0706
<b>Solid-core sensors (frame size 2)</b>	
850 A	4829 0707
1000 A	4829 0708
1500 A	4829 0709
2000 A	4829 0710
2500 A	4829 0711
5000 A	4829 0712
<b>Split-core sensors (frame size 1)</b>	
50 A	4829 0750
100 A	4829 0751
200 A	4829 0752
300 A	4829 0753
400 A	4829 0754
500 A	4829 0755
<b>Split-core sensors (frame size 2)</b>	
800 A	4829 0756
1000 A	4829 0757
1500 A	4829 0758
2000 A	4829 0759

RJ12-MOLEX cables		
Number of cables	Length of cables	Reference
3	0.3 m	4829 0782
3	0.5 m	4829 0783
3	1 m	4829 0784
3	2 m	4829 0785
1	5 m	4829 0786



# DIRIS Digiware IO

Digital and analog input/output modules

Multi-circuit metering & measurement

new



DIRIS Digiware IO-10  
4 digital inputs/2 digital outputs



DIRIS Digiware IO-20  
2 analog inputs



Configuration with EasyConfig, see page 156.

## Function

DIRIS Digiware IO modules enrich the measurement system with multiple features:

- DIRIS Digiware IO-10 modules have 4 digital inputs and 2 digital outputs.

The 4 digital inputs can be used to monitor the status of protection devices and withdrawable drawers (ON/OFF, trip counter) or to collect pulses from multi-fluid meters. The 2 digital outputs allow the remote control of switching devices by sending a binary output signal. Alarms can be configured and assigned to the digital outputs.

- Thanks to their 2 analog inputs, DIRIS Digiware IO-20 modules can collect the data from analog sensors (pressure, humidity, temperature...).

All the information reported by the IO-10 and IO-20 modules can be viewed on DIRIS Digiware D-xx displays and on Webview, the web server embedded in DIRIS G gateways and in the DIRIS Digiware D-70 display unit.

## Advantages

### Plug & Play

The IO modules can be easily added anywhere within the measurement system thanks to a quick RJ45 connection.

### Multifunction

The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

### Connected

All the reported information is accessible from the displays, from Webview or any other centralized management software.

### Compact

The modular format allows the quick connection of a large number of IO-10 and IO-20 modules.

## The solution for

- > Industry
- > Building
- > Data center



## Strong points

- > Plug & Play
- > Multifunction
- > Connected
- > Compact

## Compliance with standards

- > IEC 61557-12
- > IEC 61010



- > ISO 14025



- > UL

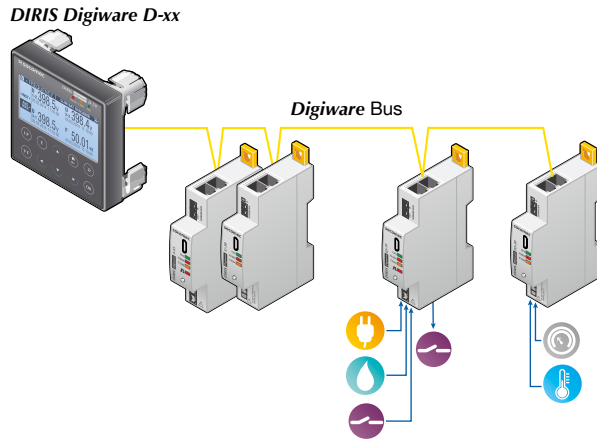


## Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



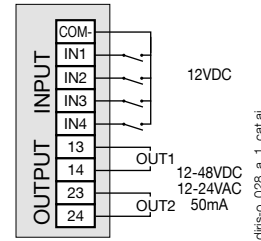
## Application diagram



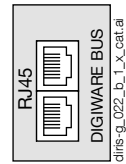
## Connections

### DIRIS Digiware IO-10

#### Digital inputs/outputs

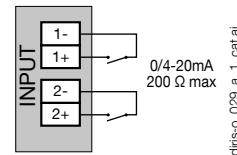


#### Digiware Bus

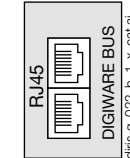


### DIRIS Digiware IO-20

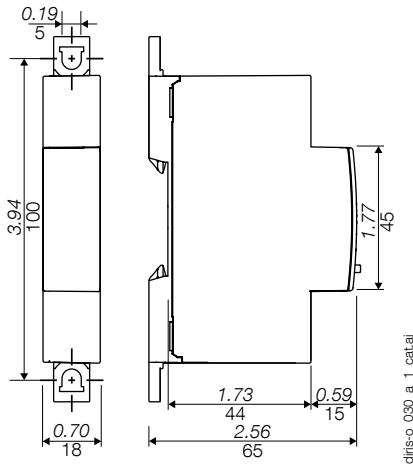
#### Analog inputs



#### Digiware Bus



## Dimensions (in/mm)



## Technical characteristics

### Measuring characteristics

#### Digital inputs/outputs - DIRIS Digiware IO-10

Number of inputs	4
Type/power supply	Insulated input, internal polarisation 12 VDC max., 3 mA
Input function	- Logical status - Status of the circuit breaker, of the drawer (ON/OFF, trip counter) - Pulse counter
Number of outputs	2
Type	Insulated output, 48 VDC max., 50 mA and 24 VAC max.
Output function	- Remote control of status - Alarm signal linked to the inputs (exceeding threshold, status...)
Input/output connection	Removable screw terminal block, 9 positions (5 dedicated to inputs, 4 dedicated to outputs) Stranded or solid 0.14 to 1.5 mm <sup>2</sup> cable

#### Analog inputs - DIRIS Digiware IO-20

Number of inputs	2
Type/power supply	0/4-20 mA, 200 Ω max
Accuracy	0.5% full scale
Function	Connection of analog sensors (pressure, humidity, temperature...) with choice of interpolation (linear or quadratic)
Input connection	Removable screw terminal block 2x2 positions, Stranded or solid 0.14 to 1.5 mm <sup>2</sup> cable

## References

Digiware connection cables	Reference
Length 0.10 m	4829 0181
Length 0.20 m	4829 0188
Length 0.50 m	4829 0182
Length 1 m	4829 0183
Length 2 m	4829 0184
Length 5 m	4829 0186
Length 10 m	4829 0187
50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)	4829 0180
USB configuration cable	4829 0050

DIRIS Digiware input/output modules	Reference
IO-10	4 digital inputs/2 outputs module 4829 0140
IO-20	2 analog input module 4829 0145



# DIRIS Q800

## Electrical network analyser

quality analysis of electrical energy and power grids

Single-circuit metering,  
measurement &  
analysis

**new**



diris-q\_012\_a

DIRIS Q

### The solution for

- > Industry
- > Infrastructure
- > Healthcare buildings
- > Data centers



### Strong points

- > Large colour touchscreen
- > High performance and accuracy
- > Regulatory compliance
- > Multiple communication channels

### Compliance with standards

- > IEC 61000-4-30 class A
- > IEC 62586-2
- > IEC 62053-22
- > IEC 62053-24
- > EN 50160



### Function

The **DIRIS Q800** is a multifunction network analyser for all energy efficiency projects. It helps to actively ensure the electrical system runs continuously and at optimised rates.

As such, with this system you can:

- Improve the efficiency of your facility.
- Reduce production losses.
- Optimise running costs.
- Reduce maintenance costs.

To achieve these objectives, the DIRIS Q800 does the following:

- Measures electrical parameters and status (via auxiliary contacts).
- Analyses the quality of energy according to class A IEC 61000-4-30.
- Measures differential current.
- GPS synchronisation.

### Advantages

#### Large colour touchscreen

The 192 x 144 mm color touchscreen is tactile, easy to operate and provides intuitive navigation.

#### Regulatory compliance

By its compliance with IEC 61000-4-30 Class A and IEC 62586-2, you have the assurance of a certified and high quality product.

#### Multiple communication channels

With its multiple communication options, the DIRIS Q800 can be integrated into any type of communication infrastructure:

- 1 rear Ethernet port for permanent cable connection.
- 1 front Ethernet for local diagnostics.
- 1 Wifi port.
- 1 RS485 port.
- 1 USB port.
- GPS synchronisation.
- Built-in Webserver.
- Protocols: HTTP, HTTPS, FTP, NTP, MODBUS, PQDIF.

## Functions

### Measurements

- Measures across 4 quadrants
- Voltage by phase, current by phase, frequency.
- Neutral current, differential current.
- Neutral/earth voltage.
- Active, reactive and apparent power.
- Cos phi and power factor.
- THD and spectral analysis up to the 63<sup>rd</sup> for current and voltage.
- Flicker (Pst, Plt).
- Voltage imbalance.
- Remote control signals.

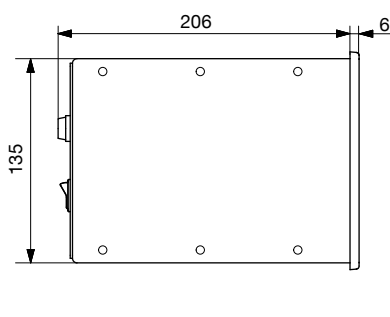
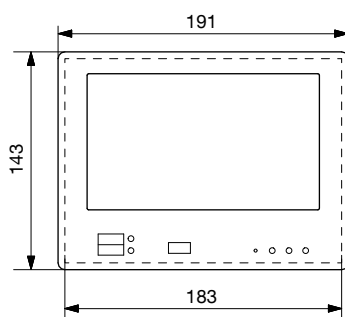
### Logging

- EN 50160 events ½ period (10 ms): voltage dips, voltage cutouts, voltage surges.
- Data exported automatically via FTP.
- EN50160 compliant.
- Transients (20 micro seconds).

### Inputs/outputs

- 4 digital inputs.
- 4 digital outputs.
- 4 analogue outputs.

## Dimensions



diris\_q800\_c\_1\_cat

### Dimensions

Cutout	192 x 144 DIN / 186 x 138 mm
Front panel (L x H)	191 x 143 mm
Enclosures (L x H x P)	183 x 135 x 190 mm
Weight	1400 g

## Specifications

Auxiliary power supply	
Voltage range	100 ... 240 VAC / 65 ... 250 VDC
Frequency	50/60 Hz
Power consumption	Max. 15 VA
Backup battery	Li-ion 2500 mAh (>15 min autonomy)
Measurement inputs	
Direct voltage measurement input	P-N: max 580 V RMS CAT III L-L: max 1000 V RMS CAT III
U4 direct voltage measurement input	Max 580 V RMS CAT II
Voltage input crest factor	2
Current inputs	Max 7 A RMS
Current input consumption	0.04 VA
Current input crest factor	3
Voltage input impedance	> 6 MΩ
Frequency range	42.5 to 57.5 Hz/51 to 69 Hz
Voltage reference channel	U1N/U12
Sampling	51.2 kHz @50 Hz
Accuracy	
Three-phase voltage	± 0.1%
4 <sup>th</sup> voltage (neutral/earth)	± 0.2%
Currents	± 0.2%
Power	± 0.2%
Frequency	± 10 mHz
Harmonics	IC. 1 IEC/EN 61000-4-7
Active energy	IC. 0.5S IEC/EN 62053-22
Reactive energy	IC. 1 IEC/EN 62053-24

Communication	
Ethernet ports	2 Auto MDIX RJ45 10/100 Base Ethernet
RS485 opto-insulated port (slave)	0.5 UL 4800 to 115200 bps
Passive WIFI antenna	RP-SMA female
Active GPS antenna	SMA female
Protocols	HTTP, HTTPS, FTP, SFTP, NTP, NMEA, Modbus RTU/TCP
USB port	USB 2.0
Environmental conditions	
Operating temperature (max. range)	-25 ... +55°C
Storage temperature	-25 ... +75°C
Humidity	Max. 95 %
Max.altitude	2000 m
Standards and safety	
Product conformity	IEC/EN 62586-2
Safety	EN 61010-2-030
Degree of pollution	2 (EN 61010-1)
Degree of protection	IP40 front, IP20 rear
Directive	RED §3.1a Health EN 62311 :2008 RED § 3.1b EMC

## References

Designation	Reference
DIRIS Q800	4826 0100

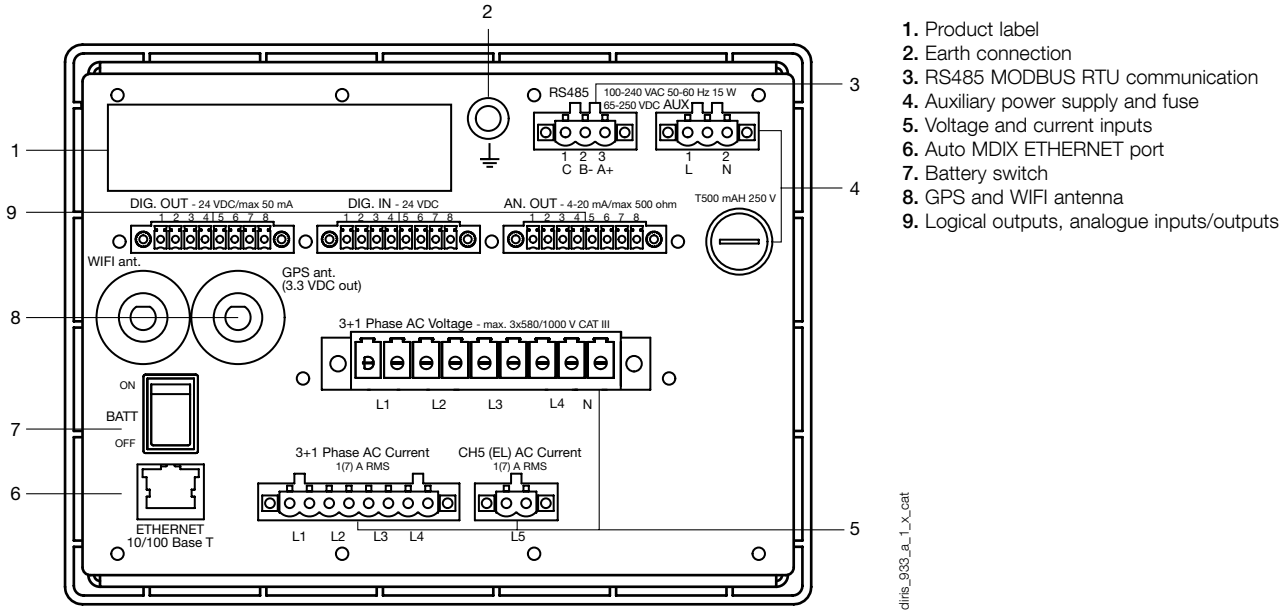


# DIRIS Q800

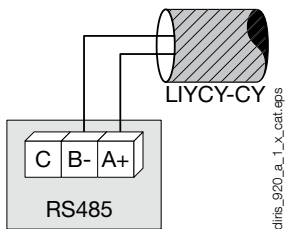
Electrical network analyser

quality analysis of electrical energy and power grids

## Terminals

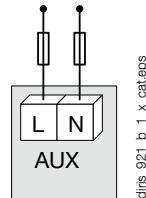


### Communication via RS485 link

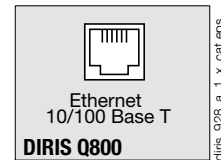


### AC and DC auxiliary power supply

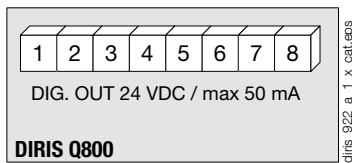
100-240 VAC  
65/250 VDC



### Ethernet communication

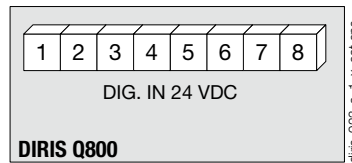


### Digital outputs



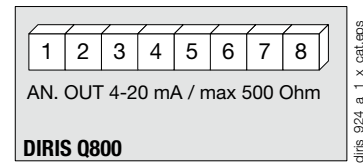
**DIRIS Q800**  
1-2: optocoupler output 1  
3-4: optocoupler output 2  
5-6: optocoupler output 3  
7-8: optocoupler output 4

### Digital inputs



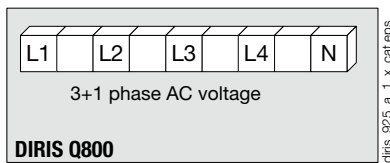
**DIRIS Q800**  
1-2: optocoupler input 1  
3-4: optocoupler input 2  
5-6: optocoupler input 3  
7-8: optocoupler input 4

### Analogue outputs

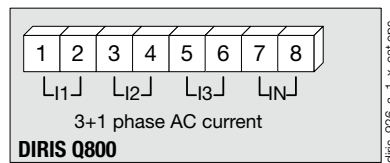


**DIRIS Q800**  
1-2: analogue output 1  
3-4: analogue output 2  
5-6: analogue output 3  
7-8: analogue output 4

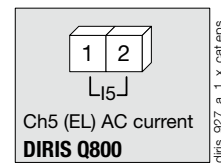
### Current and voltage inputs



**DIRIS Q800**  
L1, L2, L3, L4, N: voltage inputs



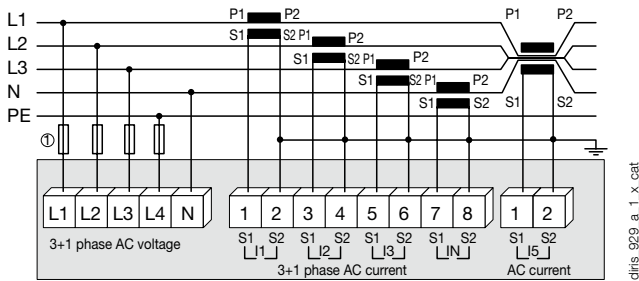
**DIRIS Q800**  
1-2: current input i1  
3-4: current input i2  
5-6: current input i3  
7-8: current input i4



**DIRIS Q800**  
1-2: differential core connections

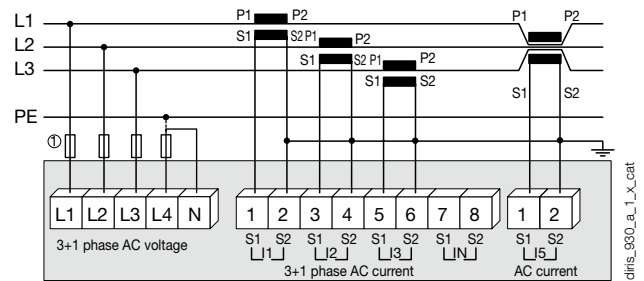
## Connections

### 4 wires with 4 CT + differential measurements (1/5 A)



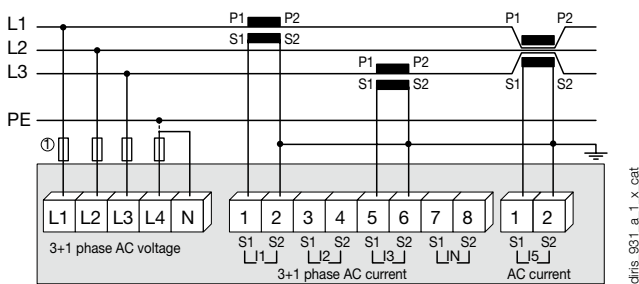
1. 0.5 A gG / 0.5 A class CC fuses.

### 3 wires with 3 CT + differential measurements (1/5 A)



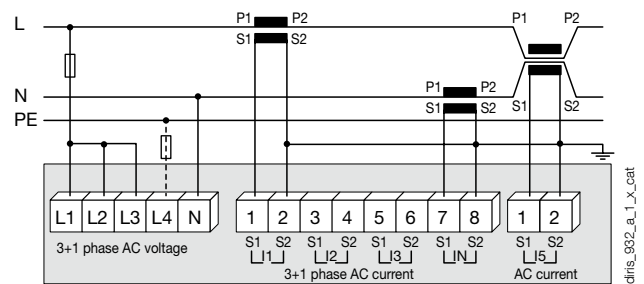
1. 0.5 A gG / 0.5 A class CC fuses.

### 3 wires with 2 CT + differential measurements



1. 0.5 A gG / 0.5 A class CC fuses.

### Single-phase with 2 CT + differential measurements (1/5 A)



1. 0.5 A gG / 0.5 A class CC fuses.

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.



# DIRIS A-40

## Multi-function meters



DIRIS A-40

### Function

The **DIRIS A-40** is a panel-mounted power monitoring device (PMD). It is designed for measuring, monitoring and reporting electrical energy.

The DIRIS A-40 offers a range of functions for measuring voltage, current, power, energy and quality.

It allows the analysis of a single-phase or three-phase load.

### Advantages

#### Assisted configuration

The configuration wizard guides the user step by step. It also detects and corrects configuration errors. This cuts the commissioning time in half and always delivers a reliable result.

#### Smart sensors

Three current sensor formats (solid-core TE, split-core TR and Rogowski coil TF) allow integration of the DIRIS A-40 into new and existing electrical installations.

See page 46.

#### Connected to the Cloud

The range comprises IoT ready connected products that enable data to be exported automatically for remote operation without any limit on time, distance and time in storage.

#### Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 standard guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

### The solution for

- > Industry
- > Building
- > Infrastructure



### Strong points

- > Assisted configuration
- > Connected to the Cloud
- > Compliant with IEC 61557-12
- > Smart sensors

### Integrated technologies



For more information, see page 12.

### Conformity to standards

- > IEC 61557-12
- > UL E257746
- > EN 50160



### Functions

#### Multi-measurement

- Currents
  - I1, I2, I3, In, Isystem
- Voltages & frequency
  - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Powers
  - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
  - Predictive powers ΣP, ΣQ, ΣS
- Power factor
  - PF1, PF2, PF3, ΣPF
- Cos φ & tangent φ
  - Instantaneous values per phase

#### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Multi-tariff (8 max.)
- Hour Meter

#### Quality

- Voltage Unbalance
  - Vdir, Vinv, Vnom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
  - Idir, linv, Ihom, Inba, Inb
- Total harmonic distortion
  - Currents THDi1, THDi2, THDi3, THDIN, TDDI
  - Phase-to-neutral voltage THDv1, THDv2, THDv3
  - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to rank 63
  - Currents: I1h, I2h, I3h, INh
  - Phase-to-neutral voltage: V1h, V2h, V3h
  - Phase-to-phase voltage: U12h, U23h, U31h
- Quality events
  - Voltage sags, cut-offs and swells EN50160
  - Kfactor & Crest factor
- Events according to EN 50160
  - Voltage dips, outages, voltage surges

#### Monitoring of protection

- Auxiliary contact monitoring
- Report and alarm on trips
- Number of operations

#### Load curves and historical records (max. 130 days)

- Active, reactive and apparent power
- Currents, voltages and frequency

#### Alarms

- Alarms for all electrical values, events and input status changes, possibility of logical combination
- Time-stamping of events

#### Communication

- DIRIS A-40 RS485 Modbus as standard
- DIRIS A-40 Ethernet Modbus
- DIRIS A-40 PROFIBUS DPV1

#### Inputs

- 3 digital inputs
  - Power supplied from DIRIS A-40 or an external source
  - Function: logic status, status of circuit breaker, counting of pulses or synchronization multifund metering
- 2 logical outputs
  - Function: Command, energy pulse output, load shedding, alarm

## Functions

### Monitoring

- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.



### Metering

- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

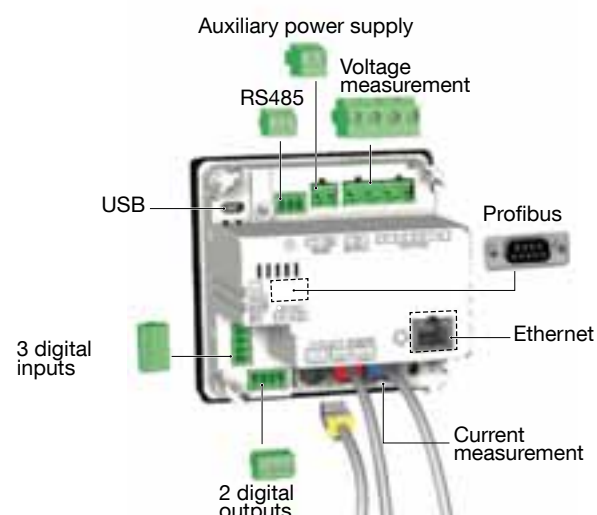


### Alarming

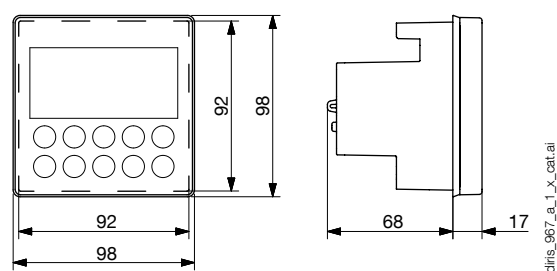
- Display of alarms.
- History of alarms.



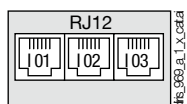
## Terminals



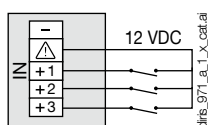
## Dimensions (mm)



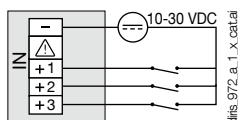
### Current measurement



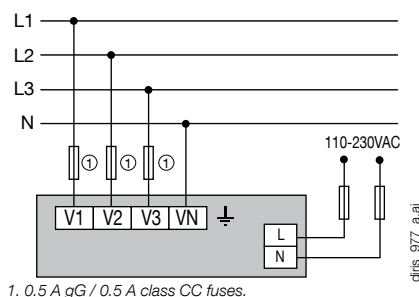
### 3 inputs supplied by the product



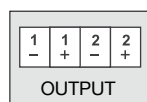
### 3 inputs with external power supply



### Voltage connections inc auxiliary power supply



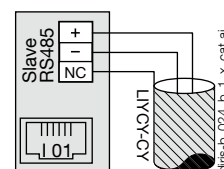
### 2 outputs



### Earth



### RS485



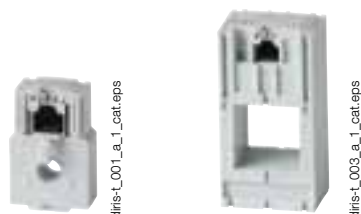
## Connections

### Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor size and type. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain.

For more information: see page 46.

TE solid current sensors



TR split-core current sensors



TF Rogowski current sensors



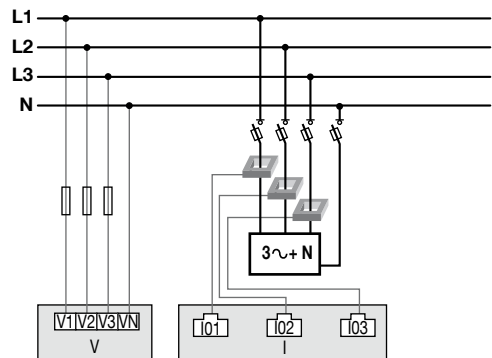
TE / TR / TF current sensors



### Network and connection examples

#### Three phase + Neutral

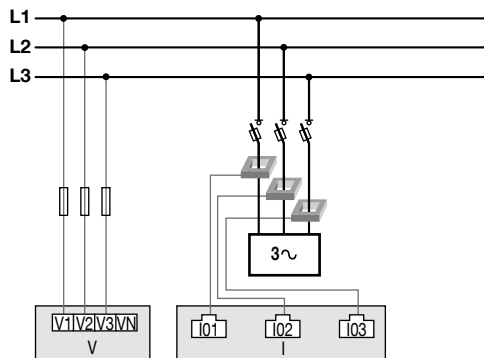
3P+N - 3 CT (1 three-phase load + calculated Neutral)



diris\_973\_a.ai

#### Three-phase

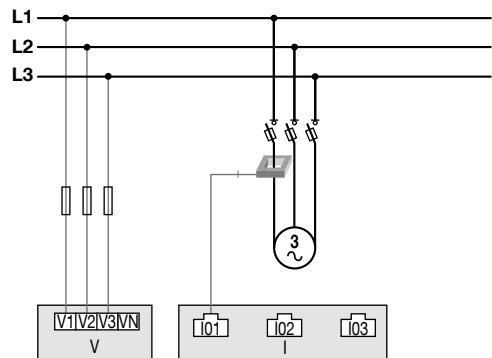
3P - 3CT (1 three-phase load)



diris\_974\_a.ai

#### Three-phase

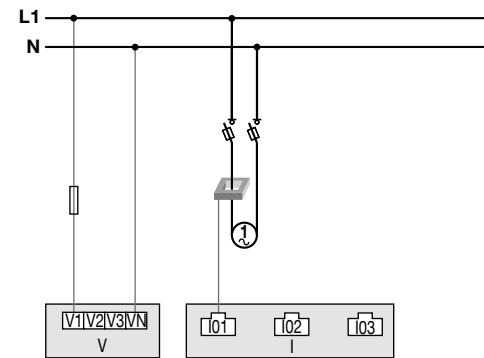
3P - 1CT (1 balanced three-phase load)



diris\_975\_a.ai

#### Single-phase

1P+N - 1CT (1 single-phase load)



diris\_976\_a.ai

1. 0.5 A gG / 0.5 A class CC fuses.  
If self-supplied, a fuse must always be added to the Neutral.



## DIRIS A-40 characteristics

### Electrical characteristics

Auxiliary power supply	
Alternative voltage	110/400 VAC or 120/300 VDC - Cat III
Frequency	50/60 Hz
Power consumption	5VA AC / 1,5VA DC (48250500) 8VA AC / 2,5VA DC (48250501 & 48250502)
Connection	Removable spring-cage terminal block, 2x 2 positions, 0.5 - 2.5 mm <sup>2</sup> solid cable or 0.25 - 1.5 mm <sup>2</sup> stranded cable with end piece

### Measurement characteristics

Power and energy measurement	
Accuracy	0.2 DIRIS A-40 class only
Active energy and active power	Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 2 with TE, TR or TF sensors

Power factor measurement	
Accuracy	Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors

Voltage measurement	
Characteristics of the network measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0,1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, 0.5 - 2.5 mm <sup>2</sup> solid cable or 0.25 - 1.5 mm <sup>2</sup> stranded cable with end piece

Current measurement	
Number of current inputs	3
Associated current sensors	Solid TE, split-core TR, flexible TF current sensors
Accuracy	0.2 DIRIS A-40 class only Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

### Input characteristics

Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation
Input function	Logic status, status of circuit breaker, synchronization topography, multifluid pulse metering
Connection	Removable screw terminal block, 5 positions, stranded or solid 0.14 - 1.5 mm <sup>2</sup> cable

### Output characteristics

Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Command, energy pulse output, load shedding, alarm
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.14 - 1.5 mm <sup>2</sup> cable

### Communication characteristics

DIRIS A-40 RS485	
Link	RS485
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baud rate	1200 to 115 200 baud
USB	Configuration of DIRIS A-40

## References

DIRIS A-40 monitoring devices		Reference
DIRIS A-40	RS485 Modbus - 3 inputs / 2 outputs	4825 0500
DIRIS A-40	Ethernet Modbus TCP or BACnet IP - webserver - RS485 Modbus - 3 inputs / 2 outputs	4825 0501
DIRIS A-40	Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	4825 0502



# DIRIS B

## Multifunction power monitoring devices

Measurement & wireless metering



Configuration with EasyConfig, see page 156.



DIRIS B-xx RS485

diris-b\_008\_a\_1\_cat.eps

DIRIS B-30 Radio frequency (wireless)

diris-b\_010\_a\_1\_cat.eps

### Function

The DIRIS B-30 is a power monitoring device in a modular format that communicates wirelessly or via RS485. The 4 RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B-30 is connected to current sensors<sup>(1)</sup> (RJ12 connection) that are suitable for all types of installation: solid TE, split-core TR, and flexible TF current sensors.

(1) See page 46.

### Advantages

#### Plug & Play

A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) allow you to simplify implementation and to save time.

#### Class 0.5 in accordance with IEC 61557-12

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE/TF current sensors).

#### Multi-circuit

- 4 current measurement inputs allow you to configure multiple circuits in order to optimise the number of measurement devices per installation.

#### Communication

- The DIRIS B-30 can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data.
  - a DIRIS G<sup>(1)</sup> gateway for centralisation and communication of data wirelessly or via RS485 and Ethernet.
  - optional modules to communicate in BACnet IP, BACnet MSTP and PROFIBUS DP protocol. Digital or analogue input/output modules can also be connected.

(1) See page 77.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



### Strong points

- > Plug & Play
- > Global accuracy class 0.5 in accordance with IEC 61557-12
- > Multi-circuit
- > Communication

### Integrated technologies






For more information, see page

### Conformity to standards

- > UL E257746
- > IEC 61557-12
- > EN 50160
- > ISO 14025





Application	Local metering	Local analysis	Remote analysis
			
<b>DIRIS B</b>	<b>B-10</b> RS485	<b>B-30</b> RS485	<b>B-30</b> RF
Number of current inputs	4	4	4
<b>Metering</b>			
± kWh, ± kvarh, kVAh	•	•	•
Load curves		•	•
Multi-tariff	•	•	•
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system	•	•	•
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•
P, Q, S, PF per phase	•	•	•
Predictive power	•	•	•
Ph/N unbalance	•	•	•
Ph/Ph unbalance	•	•	•
Current unbalance (Inba, Idir, linv, Ihom, Inb)	•	•	•
Phi, cos Phi, tan Phi	•	•	•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31	•	•	•
THDi1, THDi2, THDi3, THDin	•	•	•
Individual harmonics U & V (up to rank 63)		•	•
Individual harmonics I (up to rank 63)		•	•
Crest factor I1, I2, I3, In		•	•
Crest factor V1, V2, V3, U12, U23, U31		•	•
Sags, interruptions, swells (EN 50160)		•	•
Overcurrents		•	•
<b>Alarms</b>			
On threshold		•	•
Inputs/outputs	•	•	•
<b>History of average values</b>			
45 days (max)		•	•
<b>Communication</b>			
RS485 Modbus	•	•	
868 Mhz radio-frequency			•
2 inputs (status/pulse)	•	•	•

## Accessories

### DIRIS B sealing cover

- Prevents access to the cabling of the monitoring device.



### Remote radio antenna

- Mounted outside the enclosure of the DIRIS B-30 monitoring device to increase the transmission distance.

### USB configuration cable (2 m)

- Advanced configuration of DIRIS B gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.

# DIRIS B

Multifunction power monitoring devices

## DIRIS D-30 display

### DIRIS D-30



diris-d\_001\_a\_1\_cat

### Connection



## Optional modules

### DIRIS O



diris-b\_031\_a

Optional module

DIRIS B



### Optional modules (4 max.)\*

- Digital inputs/outputs
- Analogue inputs/outputs
- Temperature inputs
- Communication protocols

\* maximum 4 optional modules with maximum 1 temperature module and 1 communication module (Modbus, PROFIBUS, BACnet IP or BACnet MSTP).



diris-o\_019\_a

#### DIRIS O-iod

- 2 digital inputs centralises the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.



diris-o\_024\_a

#### DIRIS O-m

- Provides a second RS485 Modbus communication port to the DIRIS B for simultaneous sending of information via RS485 to two supervision stations.



diris-o\_018\_a

#### DIRIS O-ioa

- 2 inputs (4-20 mA) centralise analogue sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4-20 mA) report the measurements (power, currents, etc.) to PLCs.



diris-o\_023\_a

#### DIRIS O-p

- Adds a PROFIBUS DPV1 communication port to the DIRIS B.



diris-o\_020\_a

#### DIRIS O-it

- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature:



diris-o\_022\_a

#### DIRIS O-b/ip

- Adds a BACnet IP communication port to the DIRIS B.

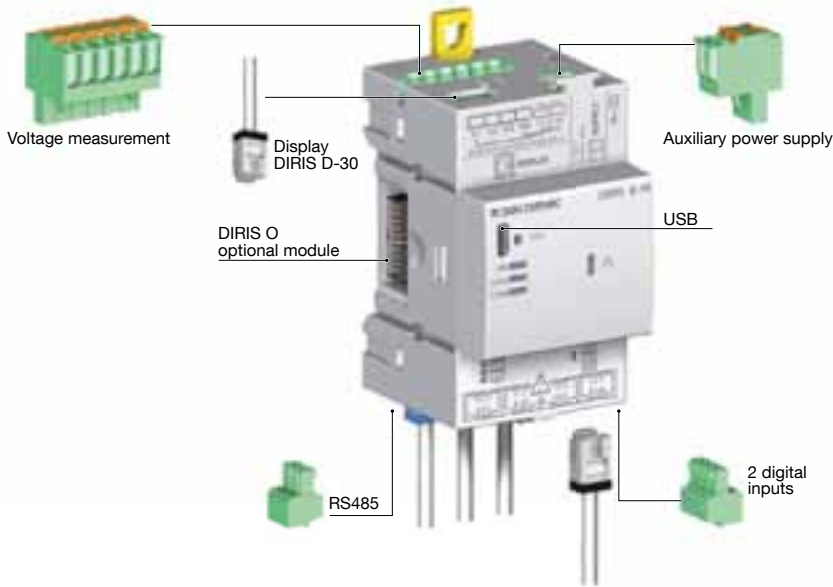


diris-o\_021\_a

#### DIRIS O-b/mstp

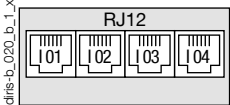
- Adds a BACnet MSTP communication port to the DIRIS B.

DIRIS B terminals

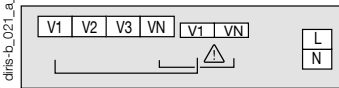


diris-d\_027\_b\_1\_gb\_cat

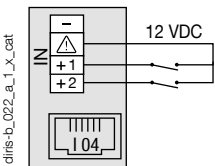
Current measurement



Voltage measurement and auxiliary power supply

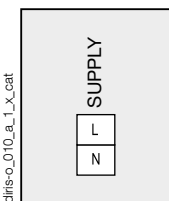


2 inputs supplied by the product



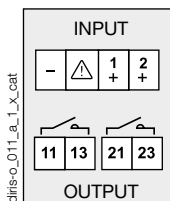
Terminals of optional DIRIS O modules

Optional module power supply



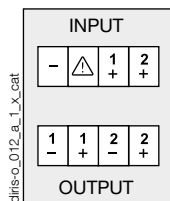
diris-o\_010\_a\_1\_x\_cat

DIRIS O-iod



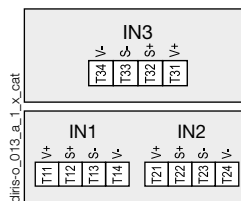
diris-o\_011\_a\_1\_x\_cat

DIRIS O-ioa



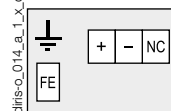
diris-o\_012\_a\_1\_x\_cat

DIRIS O-it



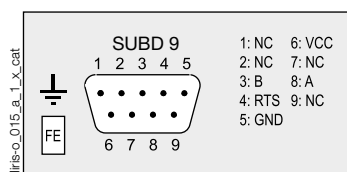
diris-o\_013\_a\_1\_x\_cat

DIRIS O-m RS485



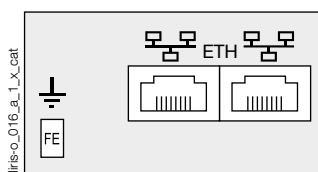
diris-o\_014\_a\_1\_x\_cat

DIRIS O-p



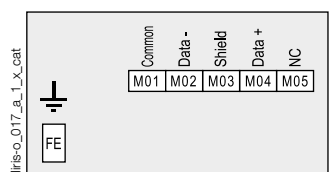
diris-o\_015\_a\_1\_x\_cat

DIRIS O-b/ip



diris-o\_016\_a\_1\_x\_cat

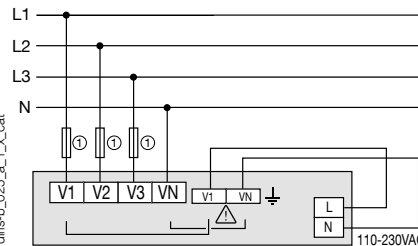
DIRIS O-b/mstp



diris-o\_017\_a\_1\_x\_cat

Self supply

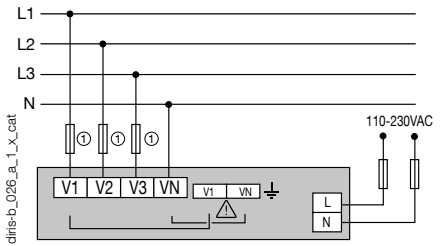
Easy connection of the power supply from the measurement terminal (specific terminals)



1. Fuses 0.5 A gG / 0.5 A class CC.

diris-b\_025\_a\_1\_x\_cat

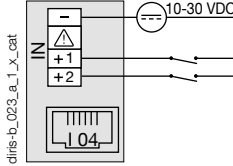
Separate power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

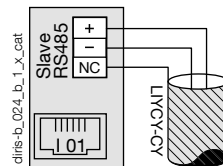
diris-b\_026\_a\_1\_x\_cat

2 inputs with external power supply



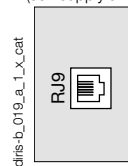
diris-b\_023\_a\_1\_x\_cat

RS485



diris-b\_024\_b\_1\_x\_cat

RJ9 for DIRIS D-30 (self-supply and data)



diris-b\_019\_a\_1\_x\_cat

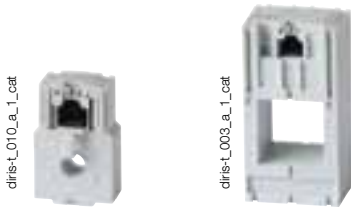
### Connections

#### Associated current sensors

Various types of current sensors can be connected to the DIRIS B: Solid TE, split-core TR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS B + current sensor measurement chain.

For more information: see page 46.

TE solid current sensors



TR Split-core current sensors



TF Flexible current sensors



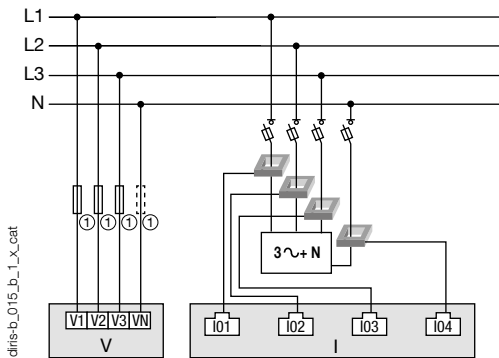
TE / TR / TF current sensors



#### Network and connection examples

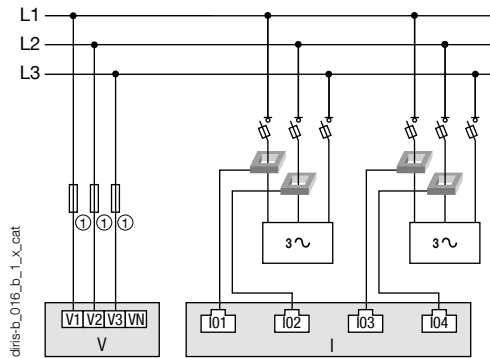
##### Three phase + neutral

3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



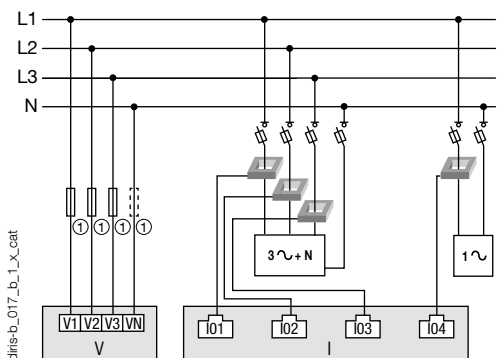
##### Three-phase

3P - 2CTs (2 three-phase loads without neutral)



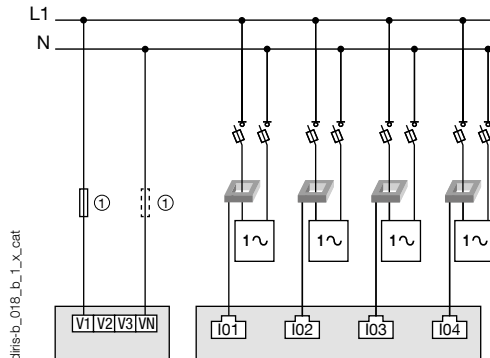
##### Three-phase

3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



##### Single-phase

1P+N-1CT (4 single-phase loads)



1. Fuses 0.5 A gG / 0.5 A class CC.

In case of self-supply, a fuse must be added on the neutral.



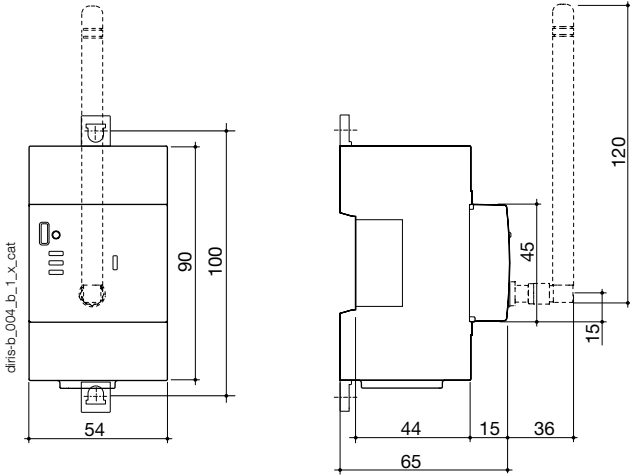
CT: Current sensors



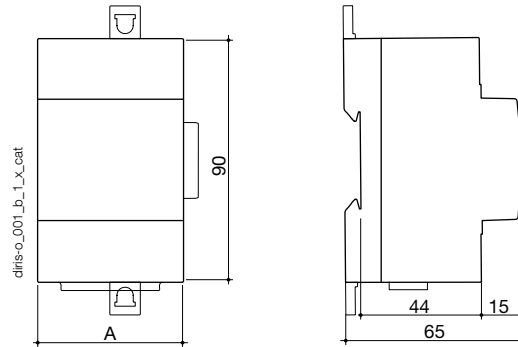
Load

Dimensions (mm)

DIRIS B

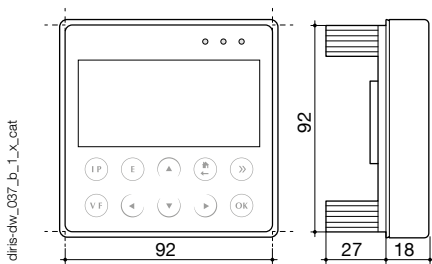


DIRIS O optional modules



DIRIS O optional modules	A
DIRIS O-iod - DIRIS O-ioa - DIRIS O-it	45 mm
DIRIS O-m - DIRIS O-p - DIRIS O-b/ip - DIRIS O-b/mstp	54 mm

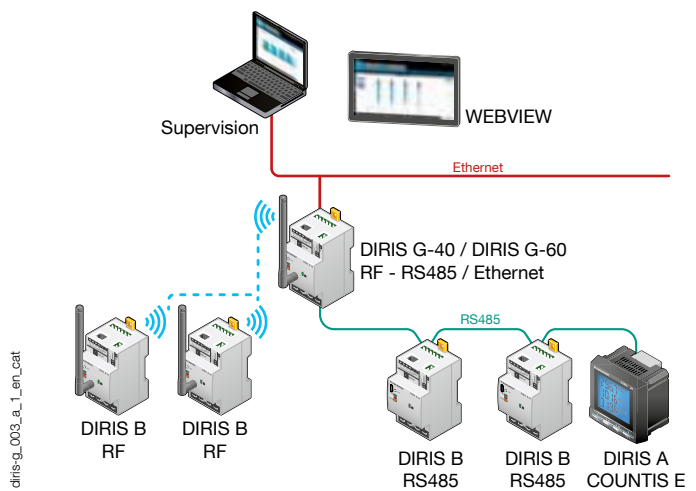
DIRIS D-30



Communication architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server

For more information about DIRIS G, see page 142.



### DIRIS B characteristics

#### Electrical characteristics

Auxiliary power supply	
AC voltage	110-230VAC $\pm 15\%$ (Ph/N ou Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	< 2VA without display < 6VA with display
Connection	Removable spring-cage terminal, 2 x 2 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

#### Measurement characteristics

Energy and power measurement	
Accuracy	Class 0.2 DIRIS B alone
Active energy and active power	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR or TF current sensors

Power factor measurement	
Accuracy	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors

Voltage measurement	
Network characteristics measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	$\leq 0.1$ VA
Permanent overload	300VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable spring-cage terminal, 2 x 6 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

Current measurement	
Number of current inputs	4
Associated current sensors	Solid TE , split-core TR , flexible TF current sensors
Accuracy	Class 0.2 DIRIS B alone Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Connection	RJ12 connectors with specific SOCOMEC cable

#### Input characteristics

Number	2
Type / Power supply	Optocoupler internal polarisation (12 VDC $\pm 10\%$ ) or external polarisation (10-30 VDC $\pm 10\%$ )
Input function	Logic status, pulse meter or synchronisation pulse status (input 1)

#### Communication characteristics

DIRIS B RS485	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
USB	DIRIS B RS485 configuration

DIRIS B-30 RF	
Link	Wireless radio frequency
Frequency band	868 MHz (low frequency: 868.1 MHz and high frequency: 869.5875 MHz)
Speed	38400 bauds
USB	DIRIS B-30 RF configuration

#### Environment characteristics

Operating temperature	-10 ... +70 °C
Storage temperature	-25 ... +85 °C
Operating humidity	55 °C / 97% relative humidity
Operating altitude	2000 m
Vibration	1G from 10 Hz to 100Hz

### DIRIS D-30 display characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Single product connection	
RJ9	Self-supply and data
Micro-USB	Updating
Degree of protection	IP65 (front face)
Environment	
Storage temperature (°C)	-20 ... +70°C
Operating temperature (°C)	-20 ... +70°C
Humidity	95 % to 40°C
Installation category	CAT III
Degree of pollution	2

### DIRIS O optional modules characteristics

Power supply <sup>(1)</sup>	
AC voltage	110-230 VAC $\pm 15\%$
Frequency	50/60 Hz

(1) No power supply on DIRIS O-it.

DIRIS O-iod - 2 digital inputs/2 digital outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	Optocoupler internal polarisation (12 VDC $\pm 10\%$ ) or external polarisation (10-30 VDC $\pm 10\%$ )
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230VAC $\pm 15\%$ - 1 A
Function	Configurable alarm (current, power,...) on threshold overruns or remote controlled status
Inputs/Outputs connection	Removable screw terminal, 4 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

DIRIS O-ioa - 2 analogue inputs/2 analogue outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Connection of analogue sensors (pressure, humidity, temperature...)
Number of outputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Transmission of measurement image (current, power...) to PLCs

DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 measurement for ambient temperature
Dynamic	-20 °C to 150 °C
Type	PT100 or PT1000
Function inputs 1, 2 and 3	Temperature measurement

DIRIS O-m - RS485 communication	
Link	RS485 2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
Connection	Removable screw terminal, 3 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

DIRIS O-p - PROFIBUS communication	
Protocol	PROFIBUS DPV1

DIRIS O-b/ip - BACnet IP communication	
Protocol	BACnet IP
Speed	10 ... 100 Mbit/s

DIRIS O-b/mstp - BACnet MSTP communication	
Protocol	BACnet MSTP
Speed	9600 ... 76800 bauds

## References

<b>DIRIS B monitoring devices</b>		<b>Reference</b>
DIRIS B-10	RS485 - Modbus - 230 VAC	4829 <b>0010</b>
DIRIS B-30	RS485 - Modbus - 230 VAC	4829 <b>0000</b>
DIRIS B-30	RF - Modbus - 230 VAC	4829 <b>0002</b>

<b>DIRIS O optional modules</b>		<b>Reference</b>
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 <b>0030</b>
DIRIS O-ioa	2 analogue inputs/2 analogue outputs 4-20 mA	4829 <b>0031</b>
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 <b>0032</b>
DIRIS O-m	RS485 Modbus communication	4829 <b>0033</b>
DIRIS O-p	PROFIBUS communication	4829 <b>0034</b>
DIRIS O-b/ip	BACnet IP communication	4829 <b>0035</b>
DIRIS O-b/mstp	BACnet MSTP communication	4829 <b>0036</b>

<b>Accessories</b>		<b>Reference</b>
DIRIS D-30 - Single-point display		4829 <b>0200</b>
RJ9 cable for DIRIS D-30 display - 1.5 m		4829 <b>0280</b>
RJ9 cable for DIRIS D-30 display - 3 m		4829 <b>0281</b>
Wireless remote antenna, 868 MHz - 210 mm height		4854 <b>0126</b>
Cable for remote antenna - SMA connector - 3 meter length		4854 <b>0127</b>
DIRIS B-30 sealing cover for I/O terminals		4829 <b>0049</b>
USB configuration cable		4829 <b>0050</b>





# DIRIS A-30/A-41

Multifunction performance metering & monitoring device - PMD  
Energy monitoring

Single-circuit metering,  
measurement &  
analysis



DIRIS A-30

diris\_984\_a\_frontEps

## The solution for

- Industry
- Building
- Infrastructures



## Strong points

- User-friendly operation
- Detects wiring errors.
- Customisable
- Web server function
- Compliant with IEC 61557-12

## Compliance with standards

- IEC 61557-12
- IEC 62053-22 class 0.5 S
- IEC 62053-23 class 2
- UL



## Function

The DIRIS A-30 and A-41 are performance metering & monitoring devices that provide the user with all of the measurements needed to complete energy efficiency projects and to assure the monitoring of electrical distribution.

All the information can be used and analysed remotely using energy efficiency software packages.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen with 6 hot keys, the DIRIS A-30 is easy to use.

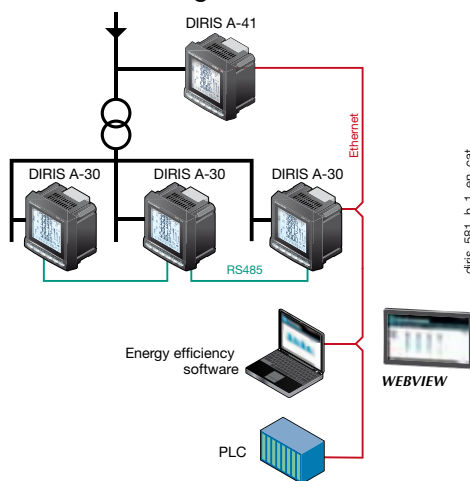
### Detects wiring errors.

The DIRIS A-30 is provided with a correction function for TC wiring errors.

### Customisable

The DIRIS A-30 can be equipped with additional modules that give the user flexibility throughout the service life of the product. Communication modules and additional digital or analogue inputs/outputs can be used to increase its range of functionality.

## Functional diagram



diris\_591\_h\_1\_en\_cat

### Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In, Isystem
  - average/max average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F, Vsystem, Ussystem
  - average/max average: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P,  $\Sigma P$ , 3Q,  $\Sigma Q$ , 3S,  $\Sigma S$
  - max average:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
  - predictive: ( $\Sigma P$ ), ( $\Sigma Q$ ), ( $\Sigma S$ )
- Power factors
  - instantaneous: 3PF,  $\Sigma PF$
  - average/max average:  $\Sigma PF$

- Kfactor
- Temperatures<sup>(1)</sup>
  - internal
  - external via 3 PT100 probes

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Effective power: kVAh
- Timetable:

### Harmonic analysis

- Level of harmonic distortion
  - Currents: thd I1, thd I2, thd I3, thd In
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Individual readings up to 63rd level

- Currents: HI1, HI2, HI3, HIn
- Phase-to-neutral voltage: HV1, HV2, HV3,
- Phase-to-phase voltages: HU12, HU23, HU31

### Load curve<sup>(1)</sup>

- Active & reactive power:  $\Sigma P$  +/- ;  $\Sigma Q$  +/-
- Voltages & frequency: V1, V2, V3, U12, U23, U31, F

### Events<sup>(1)</sup>

- Alarms on all electrical parameters.

### Communications<sup>(1)</sup>

- RS485 (Modbus & Profibus-DP)
- Ethernet (Modbus/TCP or Modbus RTU over TCP and Web server)
- Ethernet with RS485 Modbus RTU gateway over TCP

### Inputs/Outputs<sup>(1)</sup>

- Pulse counting
- Checking / control of equipment items
- Alarm report
- Pulse report

### Analogue output

- Analogue 0/4- 20 mA

<sup>(1)</sup> Available as an option (see following pages).

Front panel



1. Backlit LCD display
2. Pushbutton for currents and for connection correction function
3. Pushbutton for voltages and frequency..
4. Pushbutton for active, reactive and effective powers and for power factor.
5. Pushbutton for maximum and average values for currents and power levels.
6. Pushbutton for harmonics.
7. Pushbutton for electrical energy meters, timers and impulse counters

Integratable modules

DIRIS® A-30



diris\_773\_a

DIRIS® A-41\*



diris\_774\_a

\* With current measurement module for Neutral as standard.



**Pulse outputs**

2 configurable pulse outputs (type, weight and run) on  $\pm$ kWh,  $\pm$ kvarh and kVAh.



**MODBUS® communication**

RS485 link with MODBUS® protocol (speed up to 38400 baud).



**Analogue outputs**

You can connect a maximum of 2 modules, i.e. 4 analogue outputs.

2 outputs can be allocated to:

3I, In, 3V, 3U, F,  $\pm$  $\Sigma$ P,  $\pm$  $\Sigma$ Q,  $\Sigma$ S,  $\Sigma$ PFL/C, I sys, Vsys, Usys, Ppred, Q pred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.



**2 inputs - 2 outputs**

You can connect a maximum of 3 modules, i.e. 6 inputs / 6 outputs.

2 outputs can be allocated to:

- monitoring: 3I, In, 3V, 3U, F,  $\pm$  $\Sigma$ P,  $\pm$  $\Sigma$ Q,  $\Sigma$ S,  $\Sigma$ PFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C2, T°C3 and of time counter,
- remote control,
- timed remote control,
- 2 inputs for pulse counting.



**Storage capability**

- Memory function up to max. 62 days for P+, P-, Q+, Q- with a TOP for internal or external synchronisation of 5, 8, 10, 15, 20, 30 and 60 minutes.
- Memory function for the last 10 timed and dated alarms.
- Memory function for the last min and max instantaneous values for 3U, 3V, 3I, In, F,  $\Sigma$ P $\pm$ ,  $\Sigma$ Q $\pm$ ,  $\Sigma$ S, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In.
- Memory function of average values 3U, 3V et F as a function of synchronisation (maximum 60 days).



**Ethernet communication**

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.
- Integrated web server function<sup>(1)</sup>.



**Ethernet communication with RS485 MODBUS gateway**

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.
- Connect 1 to 247 RS485 MODBUS slaves.
- Integrated webserver function<sup>(1)</sup>.

# DIRIS A-30/A-41

Multifunction performance metering & monitoring device - PMD

Energy monitoring

## Accessories

Current transformer  
(see page 122)

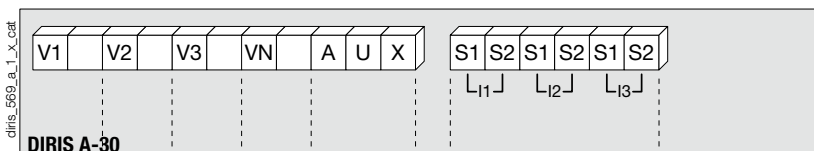


IP65 protection.



## Terminals

DIRIS A-30

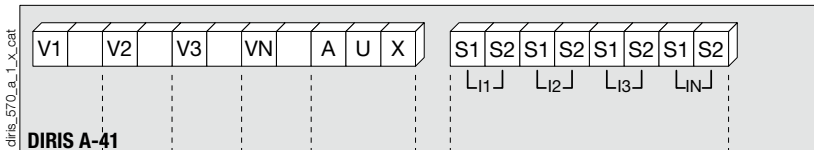


S1 - S2: current inputs

AUX: auxiliary power supplies  $U_s$

V1 - V2 - V3 - VN: voltage inputs

DIRIS A-41

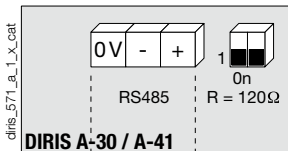


S1 - S2: current inputs

AUX: auxiliary power supplies  $U_s$

V1 - V2 - V3 - VN: voltage inputs

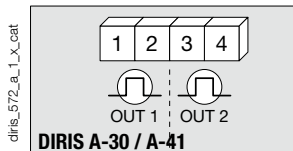
Communication module



RS485 link.

R = 120 Ω : internal resistance for the RS485 link.

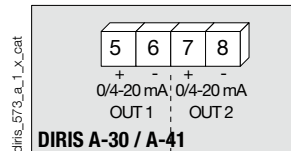
Pulse output module



1 - 2: pulse output n°1.

3 - 4: relay output n°2.

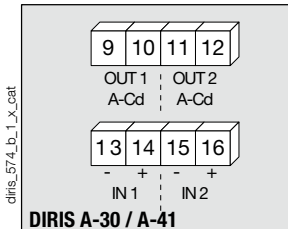
Analogue output module



5 - 6: analogue output n°1.

7 - 8: analogue output n°2.

2 input / 2 output module



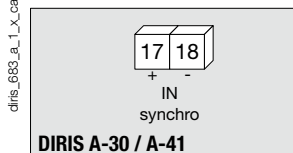
9 - 10: relay output n°1.

11 - 12: relay output n°2.

13 - 14: optical input n°1.

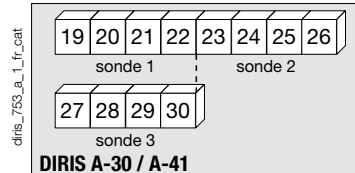
15 - 16: optical input n°2.

Memory module



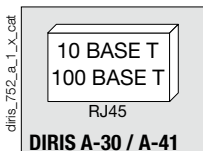
17 - 18: synchronisation input.

Temperature module

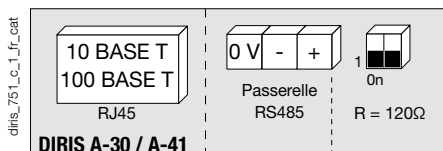


Probe 1	Probe 2	Probe 3
19: red	23: red	27: red
20: red	24: red	28: red
21: white	25: white	29: white
22: white	26: white	30: white

Ethernet module



Ethernet module + RS485 MODBUS gateway



## Electrical characteristics

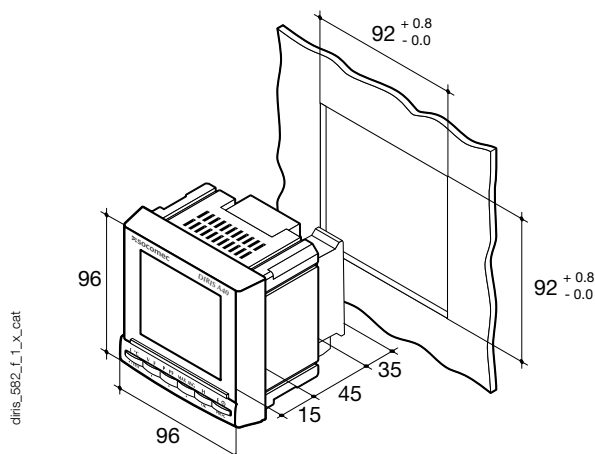
Measurement of currents on insulated inputs (TRMS)	
Via CT primary	9,999 A
Via CT secondary	1 or 5 A
Measurement range	0 ... 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 to 500 VAC
Direct measurement between phase and neutral	28 to 289 VAC
VT primary measurement	500,000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Current - voltage product	
Limitation for TC 1 A	10,000,000
Limitation for TC 5 A	10,000,000
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10 %
Direct current	120 ... 350 VDC / 12 ... 48 VDC
DC tolerance	± 20 % / - 6 ... + 20 %
Frequency	50 / 60 Hz
Power consumption	≤ 10 VA

Module 2 inputs - 2 outputs: outputs (alarms / control)	
Number of relays	2 <sup>(1)</sup>
Type	250 VAC - 5 A - 1150 VA
Module 2 inputs - 2 outputs: optical coupler inputs	
Number	2 <sup>(1)</sup>
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Pulse output module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 <sup>8</sup>
Analogue output module	
Number of outputs	2 <sup>(2)</sup>
Type	Insulated
Scale	0 / 4 ... 20 mA
Load resistance	600 Ω
Maximum current	30 mA
MODBUS communication module	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS <sup>®</sup> RTU
MODBUS <sup>®</sup> speed	4800 to 38400 baud
PROFIBUS DP communication module	
Link	SUB-D9
Protocol	PROFIBUS <sup>®</sup> DP
PROFIBUS <sup>®</sup> speed	9.8 kbaud ... 12 Mbaud
Ethernet communication module	
Connection technology	RJ45
Baud rate	10 base T / 100 base T
Protocol	MODBUS TCP or MODBUS RTU on TCP
Temperature module (inputs)	
Type	PT100
Connection	2, 3 or 4 wires
Dynamic	- 20°C ... 150°C
Accuracy	± 1 digit
Maximum length	300 cm
Operating conditions	
Operating temperature range	-10 to +55°C
Storage temperature	-20 to 85°C
Relative humidity	95%

(1) Max. 3 modules / DIRIS.

(2) Max. 2 modules / DIRIS.

## Case



Type	Integratable
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD display
Type of terminal strips	Fixed or detachable
Section of connection for voltages and other terminals	0,2 ... 2.5 mm <sup>2</sup>
Section of connection for currents	0.5 ... 6 mm <sup>2</sup>
Weight	400 g

# DIRIS A-30/A-41

Multifunction performance metering & monitoring device - PMD

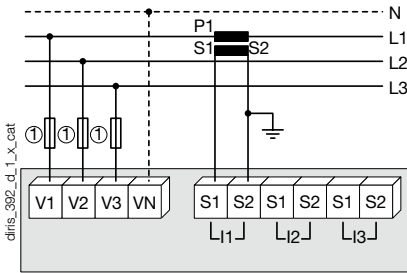
Energy monitoring

## Connections

### Balanced low-voltage network for DIRIS A-30

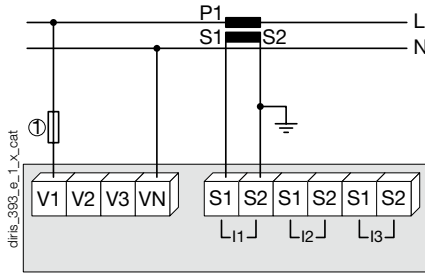
**Recommendation:** When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us. In TNC mode, it is advisable to connect the DIRIS A-30/A-41 to earth using the functional earth module.

#### 3/4 wires with 1 CTs



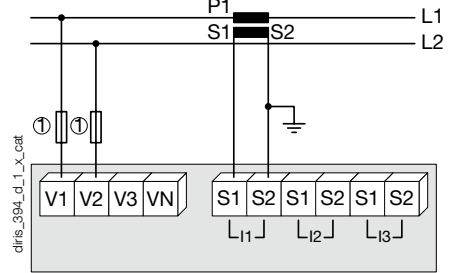
The use of 1 TC reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

#### Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

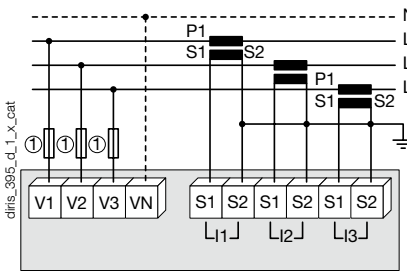
#### Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

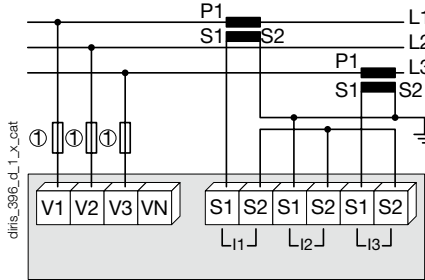
### Balanced low-voltage network for DIRIS A-30

#### 3/4 wires with 3 CTs



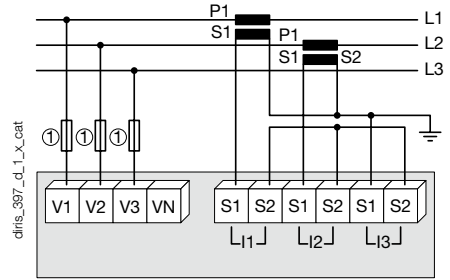
1. 0.5 A gG / 0.5 A class CC fuses.

#### 3 wires with 2 CTs



The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

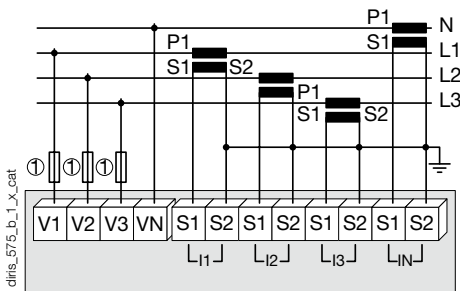
#### 3 wires with 2 CTs



The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

### Balanced low-voltage network for DIRIS A-41

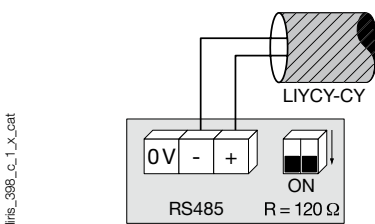
#### 4 wires with 4 CTs



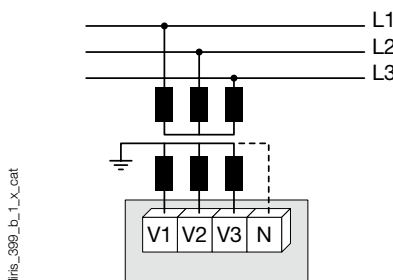
1. 0.5 A gG / 0.5 A class CC fuses.

### Additional information

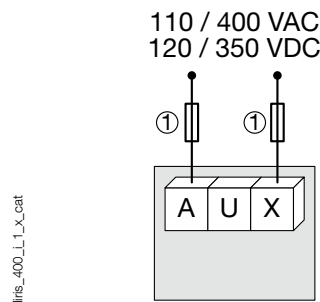
#### Communication via RS485 link



#### Connection of potential transformer for HV networks



#### AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

## References

Basic device	DIRIS A-30		DIRIS A-41 With TC on the neutral
<b>Auxiliary power supply U<sub>s</sub></b>	<b>Part number</b>		<b>Reference</b>
110 ... 400 VAC / 120 ... 350 VDC	4825 <b>0403</b>		4825 <b>0404</b>
12 ... 48 VDC	4825 <b>0405</b>		4825 <b>0406</b>

Options	Part number		Reference
<b>Integratable modules<sup>(1)</sup></b>			
Pulse outputs	4825 <b>0090</b>		4825 <b>0090</b>
RS485 MODBUS <sup>®</sup> communication	4825 <b>0092</b>		4825 <b>0092</b>
Analogue outputs	4825 <b>0093</b>		4825 <b>0093</b>
2 inputs - 2 outputs	4825 <b>0094</b>		4825 <b>0094</b>
Storage capability	4825 <b>0097</b>		4825 <b>0097</b>
Ethernet communication (integrated web server function) <sup>(2)</sup>	4825 <b>0203</b>		4825 <b>0203</b>
Ethernet communication + RS485 gateway (integrated web server function) <sup>(2)</sup>	4825 <b>0204</b>		4825 <b>0204</b>
Temperature inputs.	4825 <b>0206</b>		4825 <b>0206</b>

(1) Ease of integration of additional functions (maximum 4 placements on A-30 and 3 on A-41).

(2) Dimensions: 2 placements.

Accessories	To be ordered in multiples of	Part number	To be ordered in multiples of	Part number
IP65 protection.	1	4825 <b>0089</b>	1	4825 <b>0089</b>
Integration kit for 144 x 96 mm cutout	1	4825 <b>0088</b>	1	4825 <b>0088</b>
Fuse circuit breakers to protect voltage inputs (type RM) 3 pole	4	5701 <b>0018</b>	4	5701 <b>0018</b>
Fuse circuit breakers to protect the auxiliary power supply (type RM) 1 pole + neutral	6	5701 <b>0017</b>	6	5701 <b>0017</b>
gG 10x38 0.5 A fuses	10	6012 <b>0000</b>	10	6012 <b>0000</b>
Range of current transformers	1	See page 46	1	See page 46
Ferrite for use with communication modules	1	4899 <b>0011</b>		4899 <b>0011</b>
PT100 temperature probe, M6 screw	1	4825 <b>0208</b>	1	4825 <b>0208</b>
PT100 temperature probe, M6 lug	1	4825 <b>0209</b>	1	4825 <b>0209</b>
Associated DIRIS software				See page 156

## Expert Services

- Study, definition , advice, implementation , maintenance and training ...  
Our experts "Expert Services" offer complete support for the success of your project.







# DIRIS A-20

Multifunction performance metering & monitoring device - PMD  
Multi-measurement

Single-circuit metering,  
measurement &  
analysis



DIRIS A-20

diris\_061\_en\_front.eps

## The solution for

- > Industry
- > Infrastructure
- > Building



## Strong points

- > User-friendly operation
- > Compliant with IEC 61557-12
- > Detects wiring errors
- > Customisable

## Compliance with standards

- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2
- > UL



## Related software

- > To use Socomec PMDs effectively, we can offer you several dedicated software tools.  
See page 156.

## Function

DIRIS A-20 units are performance metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analysed remotely with the help of energy efficiency software programs.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen with 4 hot keys, the DIRIS A-20 is easy to use.

### Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

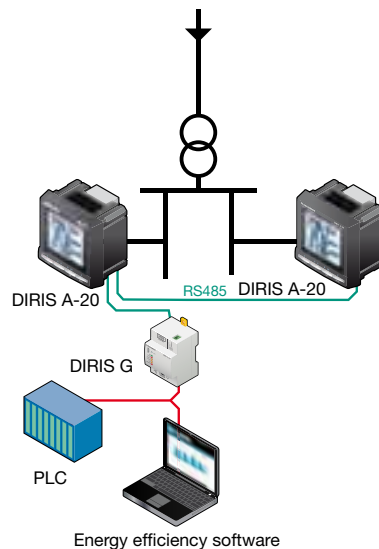
### Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for TC connection.

### Customisable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

## Functional diagram



DIRIS\_576\_L1\_en\_cat

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Timetable: ⌚

### Harmonic analysis

- Total harmonic distortion (rank 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Events

Alarms on all electrical parameters

### Communications <sup>(1)</sup>

RS485 with MODBUS protocol

### Output

- Equipment control
- Alarm report
- Pulse report

### Input

- Information report from a dry external contact

(1) Available as an option (see the following pages).

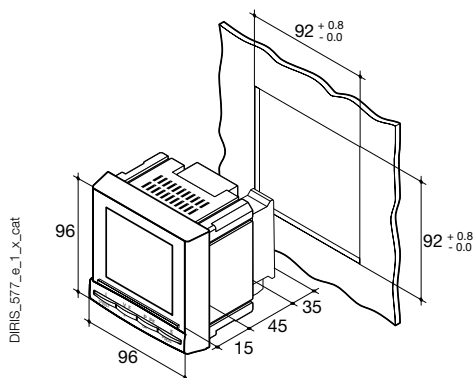


### Front panel



1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

### Case



Type	Plug-in
Dimensions L x H x P	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD
Type of terminal strips	Fixed or removable
Section for connection of voltages and other terminals	0.2 ... 2.5 mm <sup>2</sup>
Section for connection of currents	0.5 ... 6 mm <sup>2</sup>
Weight	400 g

### Plug-in optional modules

#### DIRIS® A-20



#### 1 output

- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
  - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
  - Equipment control



#### Communication

RS485 link with MODBUS protocol (speed up to 38 400 baud).



#### 3 inputs , 1 output

- 3 inputs can be configured into:
- Information report from an external contact.
- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
  - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
  - Equipment control

### Accessories

Current transformer (see page 46)



IP65 protection



# DIRIS A-20

Multifunction performance metering & monitoring device - PMD

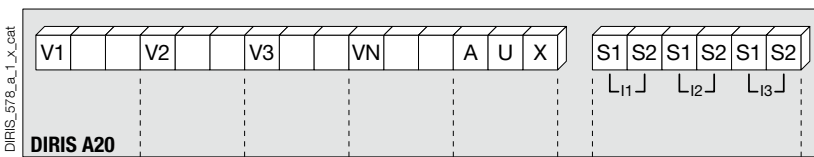
Multi-measurement

## Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> over 1 sec
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2%
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%

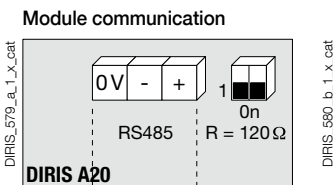
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (in acc. with CEI 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10%
DC voltage	120 ... 289 VDC
DC tolerance	± 20%
Frequency	50 / 60 Hz
Power consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0,5 A - 10 VA
Max. number of manoeuvres	≤ 10 <sup>8</sup>
Inputs	
Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 ... 38400 baud
Operating conditions	
Operating temperature range	- 10 ... + 55°C
Storage temperature	- 20 ... + 85°C
Relative humidity	95%

## Terminals

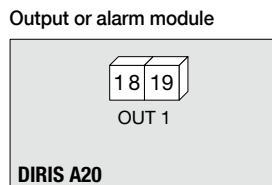


S1 - S2: current inputs.

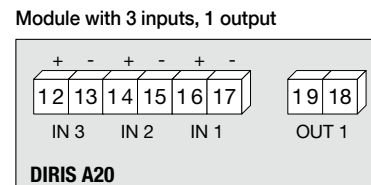
AUX: auxiliary power supply U<sub>s</sub>.  
V1, V2, V3 & VN: voltage inputs.



RS485 link.  
R = 120 Ω : internal resistance for the RS485 link.



18 - 19: output n°1



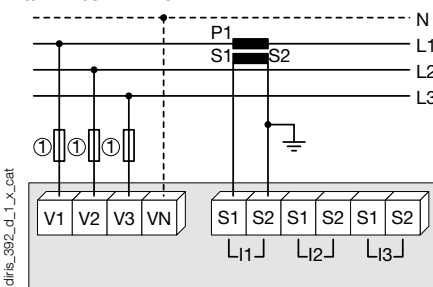
## Connection

### Low voltage balanced network

#### Recommendation

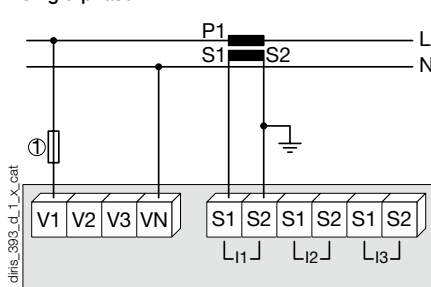
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

#### 3/4 wires with 1 CT



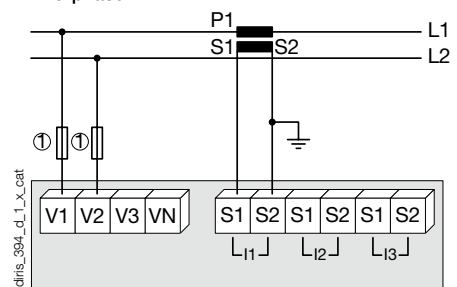
The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

#### Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

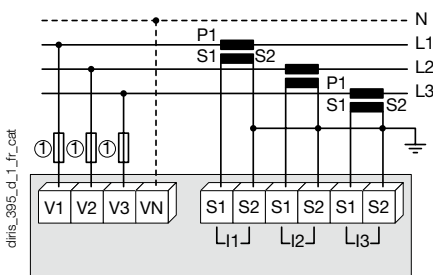
#### Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

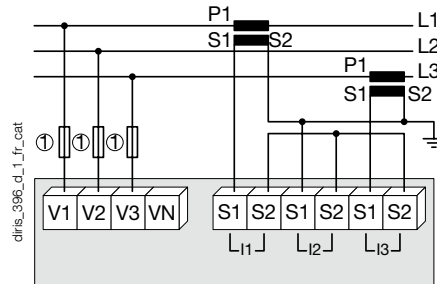
#### Low voltage unbalanced network

##### 3/4 wires with 3 CTs



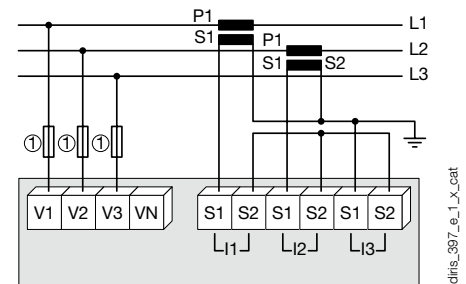
1. 0.5 A gG / 0.5 A class CC fuses.

##### 3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

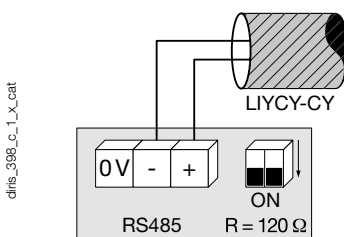
##### 3 wires with 2 CTs



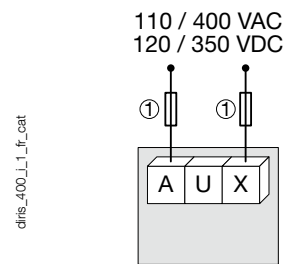
The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

#### Additional information

##### Communication via RS485 link



##### AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

## References

Basic device		DIRIS A-20
Auxiliary power supply U <sub>s</sub>		Part number
110 ... 400 VAC / 120 ... 350 VDC		4825 0402
Options		
Plug-in optional modules		Part number
On/Off output.		4825 0080
RS485 MODBUS® communication		4825 0082
3 inputs, 1 output		4825 0083
Accessories		
Designation of accessories		To be ordered in multiples of
Protection IP65		1
Plug-in kit for cutout 144 x 96 mm		1
Fuse circuit breakers to protect voltage inputs (type RM) 3 pole		4
Fuse circuit breakers to protect the auxiliary power supply (type RM) 1 pole + neutral		6
gG 10x38 0.5 A fuses		10
Ferrite for use with communication modules		1
Current transformer range		1
Software associated with DIRIS		See page 46
		See page 156

## Expert Services

- > Study, definition, advice, implementation, maintenance and training ... Our experts "Expert Services" offer complete support for the success of your project.





# DIRIS A14

Multifunction measuring unit - PMD - MID  
multi-measurement

Single-circuit metering,  
measurement &  
analysis

**new**

diris\_904\_a\_1\_cat



DIRIS A14 panel mounted

diris\_903\_a\_1\_cat



DIRIS A14 DIN rail mounted

## The solution for

- › Industry
- › Infrastructures
- › Data centers



## Strong points

- › Single phase and three phase MID certified
- › Bi-directional metering
- › Multi-measurement and load curves
- › IEC 61557-12 measuring method
- › Detection of connection errors

## Compliance with standards

- › IEC 61557-12
- › IEC 62053-23 class 2
- › EN50470-1
- › EN50470-3 class C



## Function

The **DIRIS A14** is an MID approved multifunction meter - for measuring electrical values in low voltage networks. It allows all electrical parameters to be displayed and utilised for communication and/or output functions.

## Advantages

### Single phase and three phase MID certified

DIRIS A14 products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary, whether on a three-phase or single-phase network. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

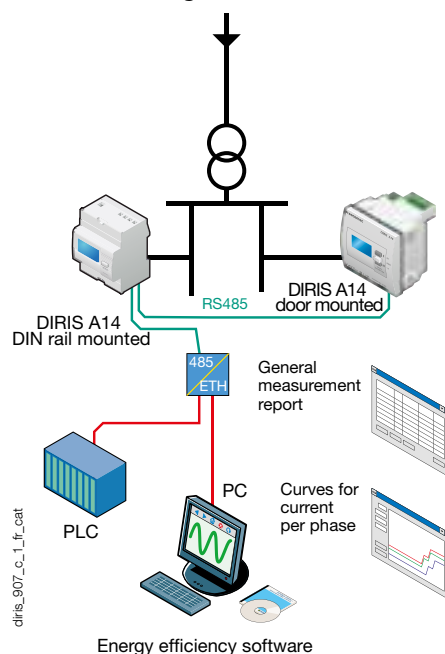
### Bi-directional metering (four quadrants)

This function is for metering energy production or energy consumption.

### Multi-measurement and load curve

Display of electrical values (I, U, V,  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$ , PF) and P+ load curve over a 7 day period via communication.

## Functional diagram



diris\_907\_c\_1\_fr\_cat

### IEC 61557-12 measuring method

IEC 61557-12 is a high-level standard covering all PMDs (Performance Monitoring Devices). By using the measuring method of IEC 61557-12 ensures a high level of equipment performance, in terms of metrology.

### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. The power supply internally derived from the voltage connections ensures realtime MID counting as soon as the mains voltage is present.

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Frequency
- Voltages
  - instantaneous: V1, V2, V3, U12, U23, U31,  $\Sigma S$
- Powers
  - instantaneous:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
  - maximum average:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
- Power factor (cos  $\varphi$ )
  - instantaneous:  $\Sigma \cos \varphi$
  - maximum average:  $\Sigma \cos \varphi$

### Total and partial metering

- Active energy: + kWh, - kWh
- Reactive energy: + kvarh, - kvarh

### Harmonic analysis (via communication)

- Total harmonic distortion (rank 63)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Multi tariff function (via communication)

Selection of one out of 4 billing tariffs

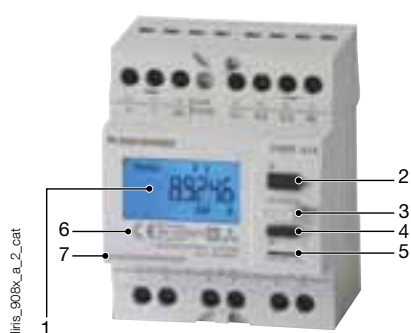
### Events (via communication)

- Active energy consumption: day n-1 / week n-1 / month n-1
- Active power load curves: P 10 minutes over 7 days with time-log

### Communications

RS485 with MODBUS protocol

## Front panel

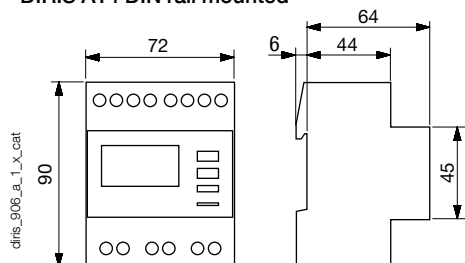


1. Backlit LCD display
2. Direct access for energies and validation key
3. Programming key
4. Navigation key for measurements
5. Metrological LED
6. MID marking
7. Serial Number

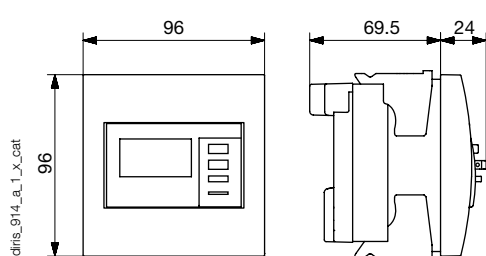


## Case

### DIRIS A14 DIN rail mounted



### DIRIS A14 door mounted



	DIRIS A14 DIN rail mounted	DIRIS A14 door mounted
Type	modular	Recessed
Number of modules	4	-
Dimensions W x H x D	72 x 90 x 64 mm	96 x 96 x 69.5 mm
Case degree of protection	IP20	
Front degree of protection	IP51	
Display type	Backlit LCD	
Rigid cable cross-section	1.5 ... 10 mm <sup>2</sup>	
Flexible cable cross-section	1 ... 6 mm <sup>2</sup>	
Weight	240 g	450 g

## Electrical characteristics

Current measurement (TRMS)	
Via CT primary	10 ... 2500 A
Via CT secondary	5 A
Input consumption	0.6 VA
Startup current (Ist)	5 mA
Minimum current (Imin)	50 mA
Transmission current (Itr)	250 mA
Reference current (Iref)	5 A
Measurement updating period	1 s
Accuracy	0.5%
Permanent overload	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurements (TRMS)	
Direct measurement (four phases)	50 ... 460 VAC
Input consumption	2 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	480 V (phase-to-phase measurement)
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement (cos φ)	
Measurement updating period	1 s
Accuracy	0.01

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Active (according to EN 50470)	Class C
Metrological LED (EA*,EA*)	
Pulse weight	10000 pulses/kWh
Colour	Red
Auxiliary power supply	
Self-powered	Yes
Frequency	50 / 60 Hz
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 ... 38400 bauds
Operating conditions	
Operating temperature	-10 ... +55°C
Storage temperature	-20 ... +70°C
Relative humidity	95% non-condensing

# DIRIS A14

Multifunction measuring unit - PMD - MID  
multi-measurement

## Connection

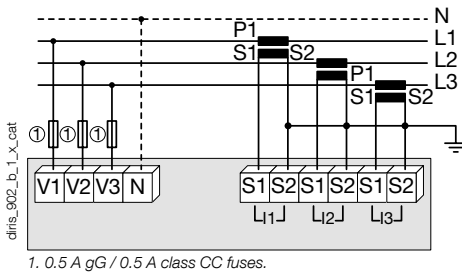
### Low voltage balanced network

#### Recommendation:

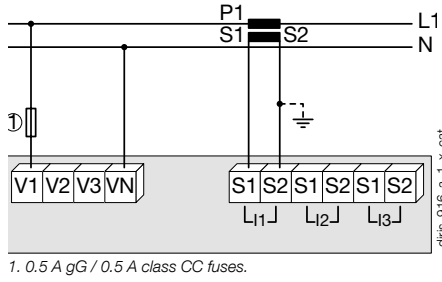
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
  - When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.
- This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

### Low voltage unbalanced network

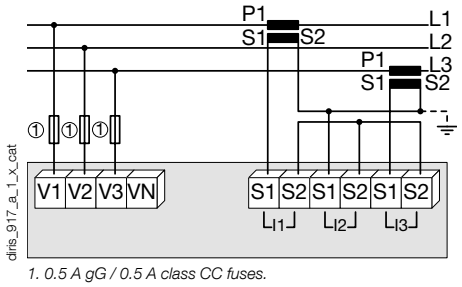
#### 3/4 wires with 3 CTs



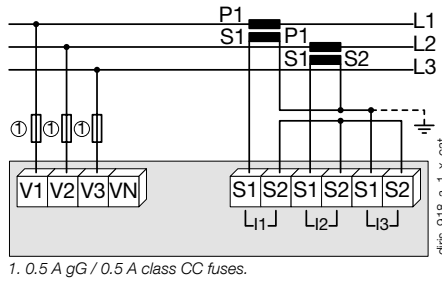
#### Single-phase



#### 3 wires with 2 CTs

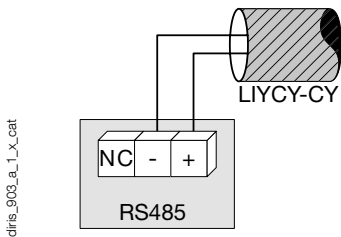


#### 3 wires with 2 CTs



### Additional information

#### Communication via RS485 link



## Terminals

Voltage outlets	
V	12
V2	14
V3	16
N	2
ICM (Intelligent Communication Module)	
RS485 "+"	15
RS485 "-"	17
RS485'NC"	13

Current inputs	
I1 S1	1
I1 S2	3
I2 S1	5
I2 S2	7
I3 S1	9
I3 S2	11

## References

Basic device	DIRIS A14 Reference
<b>Description</b>	
DIRIS A14 MID DIN rail mounted	4825 0020
DIRIS A14 MID door mounted	4825 0021

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.







# DIRIS A-10

Multifunction meters - PMD  
modular multifunction meter

Single-circuit metering,  
measurement &  
analysis



DIRIS A-10

diris\_978\_a\_front.eps

## The solution for

- > Industry
- > Infrastructures
- > Tertiary



## Strong points

- > Easy to use
- > Integrated temperature sensor
- > Detects wiring errors
- > Compliant with IEC 61557-12

## Conformity to standards

- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2
- > UL



## Function

The **DIRIS A-10** is a modular multifunction meter for measuring electrical values in low voltage networks.

It allows all electrical parameters to be displayed and utilised for communication and/or output functions.

## Advantages

### Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on its backlit LCD display.

### Integrated temperature sensor

It allows variations in temperature to be detected.

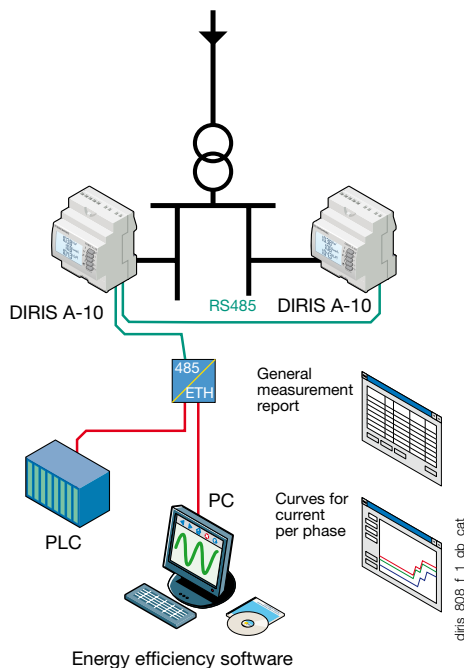
### Detects wiring errors

An integrated test function can be utilised to detect incorrect wiring and to automatically correct CT installation errors.

### Compliant with IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks. Compliance with IEC 61557-12 ensures a high level of equipment performance, in terms of metrology, and the mechanical and environmental aspects (EMC, temperature, etc.).

## Principle diagram



diris\_808\_L1\_glb\_cat

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kVarh
- Hours: ⌚
- Harmonic analysis
  - Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Dual tariff function

Selection of one out of 2 billing tariffs

### Events

Alarms on all electrical values

### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

### Input

- Tariff selection
- Remote device status

### Output

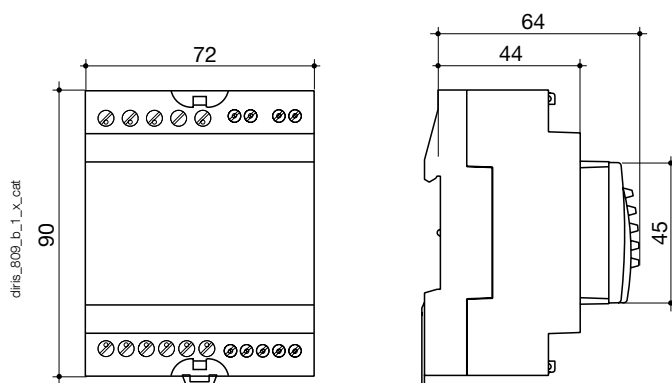
- Remote command of device
- Alarm report
- Pulse report

<sup>(1)</sup> Available on specific version (see the following pages).

## Front panel



## Case



Type	modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case degree of protection	IP 30
Front degree of protection	IP 52
Display type	backlit LCD display
Voltage and current connection cross-section	4 mm <sup>2</sup>
Connection cross-section for AUX supply, input, output and comms.	2.5 mm <sup>2</sup>
Weight	205 g (4825 0010) - 215 g (4825 0011)

## Electrical characteristics

<b>Current measurement (TRMS)</b>	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> for 1 s
<b>Voltage measurements (TRMS)</b>	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
<b>Power measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Power factor measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Frequency measurement</b>	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

<b>Energy accuracy</b>	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
<b>Auxiliary power supply</b>	
Alternating voltage	110 ... 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
<b>Digital output (pulses or on/off)</b>	
Number	1
Type	20 / 30 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10 <sup>9</sup>
<b>Input (tariff)</b>	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
<b>Communication</b>	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS <sup>®</sup> speed	2400 ... 38400 bauds
<b>Operating conditions</b>	
Operating temperature	- 10 ... + 55 °C
Storage temperature	- 20 ... + 70 °C
Relative humidity	85 %

# DIRIS A-10

Multifunction meters - PMD  
modular multifunction meter

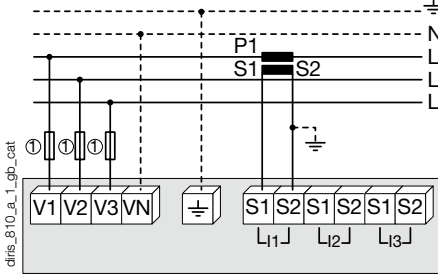
## Connection

### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.
- It is recommended that the earthing point for the DIRIS A-10 and the current transformer secondaries are not earthed at the same time.

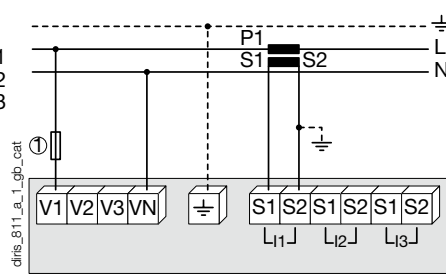
### Low voltage balanced network

#### 3/4 wires with 1 CT



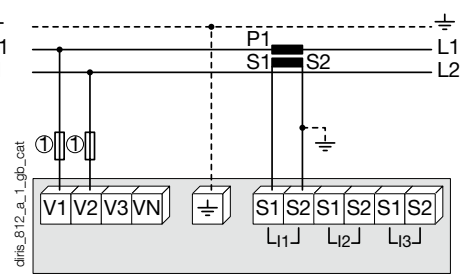
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

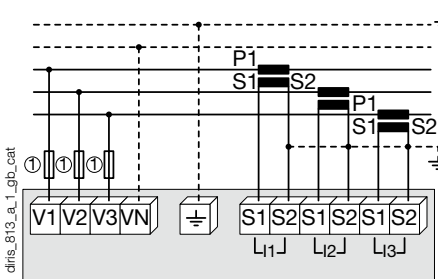
#### Two-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

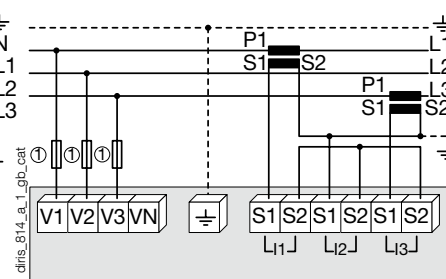
### Low voltage unbalanced network

#### 3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

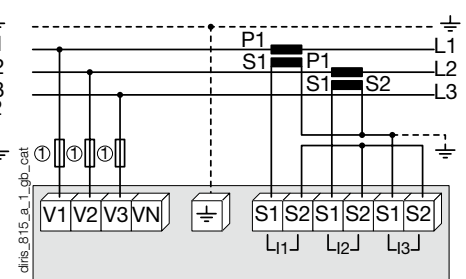
#### 3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

#### 3 wires with 2 CTs

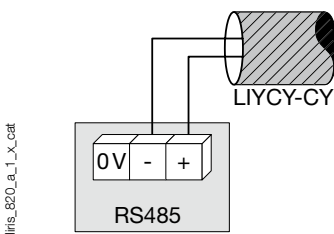


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

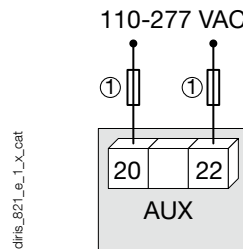
## Additional information

### Communication via RS485 link



diris\_b20\_a\_1\_x\_cat

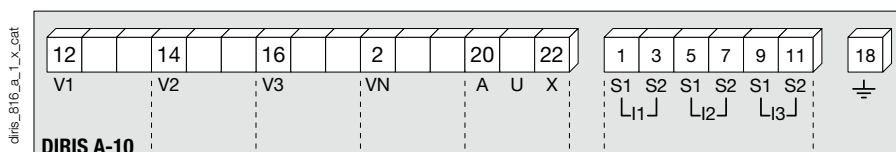
### AC auxiliary power supply



diris\_b21\_e\_1\_x\_cat

1. Fuses 0.5 A gG / 0.5 A class CC.

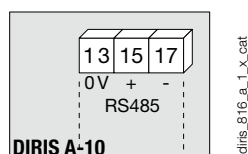
## Terminals



AUX: auxiliary power supply  $U_s$ .  
V1, V2, V3 & VN: voltage inputs.

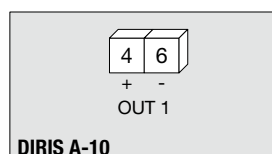
S1 - S2: current inputs.

### Communication terminals



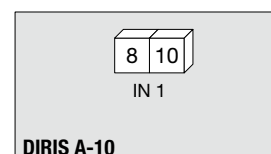
RS485 link.

### Pulse or alarm output terminals



4 - 6: output n°1

### Input terminals



8 - 10: input n°1

## References

Basic device	DIRIS A-10	
<b>Description</b>	<b>Reference</b>	
DIRIS A-10	4825 <b>0400</b>	
DIRIS A-10 with RS485 MODBUS communication	4825 <b>0401</b>	
<b>Description of accessories</b>	<b>To be ordered in multiples of</b>	<b>Reference</b>
Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles	4	5701 <b>0018</b>
Fuse disconnect switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5701 <b>0017</b>
Fuses type gG 10x38 0.5 A	10	6012 <b>0000</b>
Current transformer range	1	See page 46
Management software for DIRIS		See page 156

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.





# MULTIS L50

Digital panel meter

three phases - via CT up to 6000 A dimensions 96 x 96 mm

Single-circuit metering,  
measurement &  
analysis

**new**



multi\_076\_a\_1\_cat.eps

MULTIS L50

## The solution for

- > Industry
- > Infrastructure



## Strong points

- > Large backlit LCD display
- > Direct display of multimeasurement and metering values
- > RS485 MODBUS communication
- > Inputs/Output for control/ command ou pulses

## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2



## Function

The MULTIS L50 is a panel mounted digital meter displaying multi-measurement and energy values directly on its large backlit LCD display. It is designed for utilisation on three-phase or single-phase networks with connection via CT and is suitable for applications of up to 6000 A. The product can be configured by the user via the keypad and the display.

## Advantages

### Easy to use

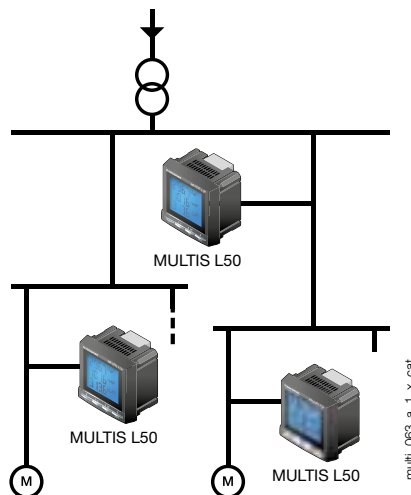
Thanks to its large backlit LCD display and its multiple viewing screens with direct pushbutton access, MULTIS L50 provide clear readings and are easy to use.

They directly display a number of multi-measurement and metering values.

### Advanced functionalities

The MULTIS L50 offers input/output functions as standard and has a pulse output or RS485 MODBUS communication output.

## Principle diagram



multi\_063\_a\_1\_x\_cat

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
  - unbalance: U unb
- Power factors
  - instantaneous: 3PF, Σ

### Metering

- Active energy: ± kWh
- Reactive energy: ± kvarh
- Hours: ⌚

### Harmonic analysis

- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

### Output

- Remote command of device
- Pulse report

### Inputs

- Remote status device

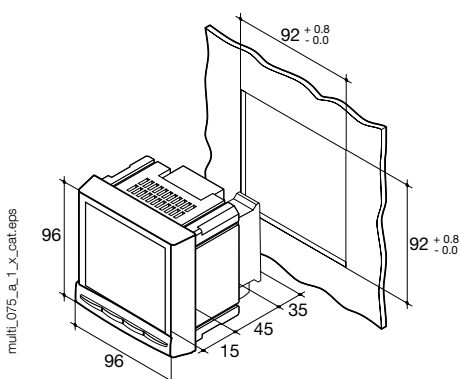
(1) Available as an option (see the following pages).

### Front panel



1. Backlit LCD display.
2. Direct access key for currents (instantaneous and max. values), current THD.
3. Direct access key for voltages, frequency and voltage THD.
4. Pushbutton for active, reactive, and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies, hour meter and programming menu.

### Case



Type	panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	backlit LCD display
Terminal block type	fixed or plug-in
Voltage and other connection cross-section	0.2 ... 2.5 mm <sup>2</sup>
Current connection cross-section	0.5 ... 6 mm <sup>2</sup>
Weight	400 g

### Plug-in modules

#### MULTIS L50



#### 1 Output

1 output assignable to:

- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.



#### Communication

RS485 link with JBUS / MODBUS protocol (speed up to 38400 bauds)



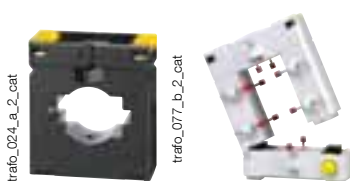
#### 3 inputs, 1 output

3 inputs assignable to:

- Remote status device.
- 1 output assignable to:
- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.

### Accessories

#### Current transformers (see page 122)



#### IP65 protection



#### Panel mounting kit for a 144 x 96 mm cut-out



# MULTIS L50

Digital panel meter

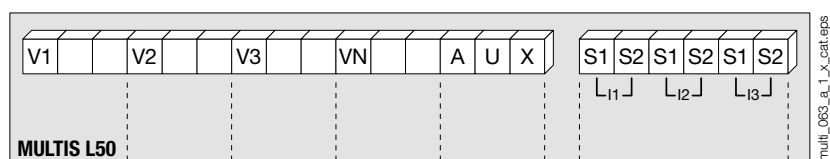
three phases - via CT up to 6000 A dimensions 96 x 96 mm

## Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	1%
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	1%
Permanent overload	800 VAC
Power measurement	
Measurement updating period	1 s
Accuracy	1%
Power factor measurement	
Measurement updating period	1 s
Accuracy	1%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternating voltage	110 ... 250 VAC
AC tolerance	± 10 %
Direct voltage	120 ... 250 VDC
DC tolerance	± 10%
Frequency	50 / 60 Hz
Consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10 <sup>8</sup>
Inputs	
Number	3
Power supply	10 ... 30 VDC
Minimum signal width	10 ms
Minimum duration between 2 pulses	18 ms
Type	Phototransistors
Communication	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	1400 ... 38400 bauds
Operating conditions	
Operating temperature	- 10 ... + 55 °C
Storage temperature	- 20 ... + 85 °C
Relative humidity	95 %

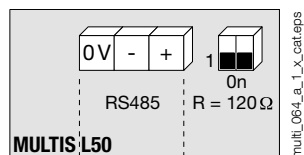
## Terminals



S1 - S2: current inputs.

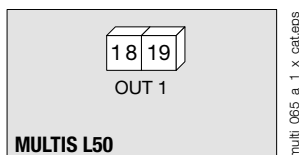
AUX: auxiliary power supply U<sub>s</sub>.  
V1, V2, V3 & VN: voltage inputs.

### Communication module



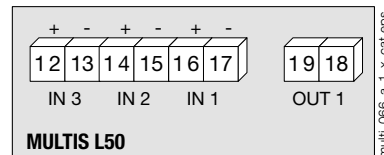
RS485 link.  
R = 120 Ω: selectable internal resistance for RS485 end of line termination.

### Output or alarm module



18 - 19: output n°1

### 3 inputs, 1 output module



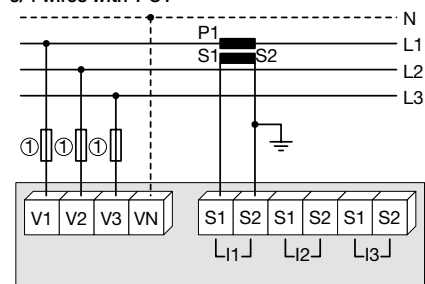
## Connection

### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

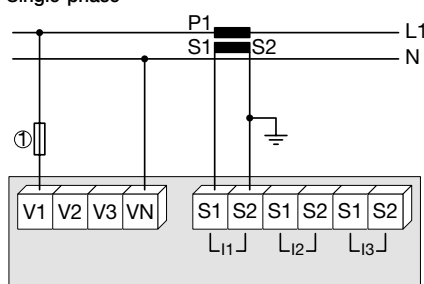
### Low voltage balanced network

#### 3/4 wires with 1 CT



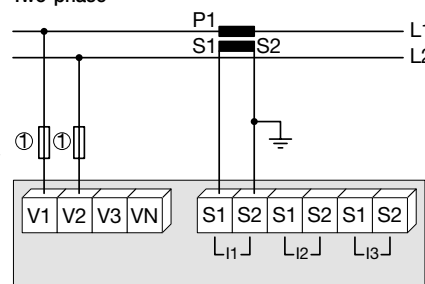
Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.  
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

#### Two-phase

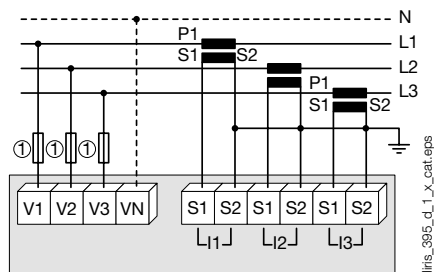


1. Fuses 0.5 A gG / 0.5 A class CC.



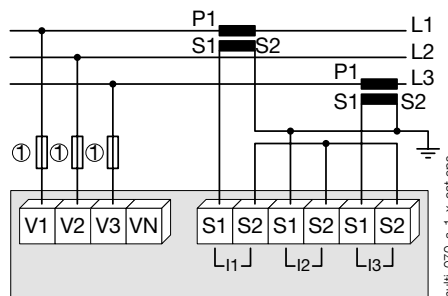
#### Low voltage unbalanced network

##### 3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

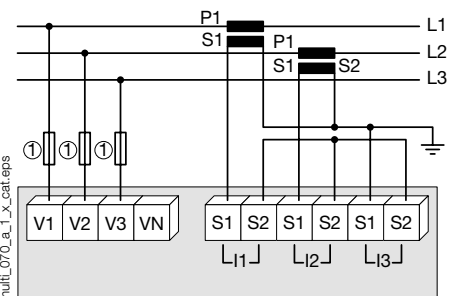
##### 3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

##### 3 wires with 2 CTs

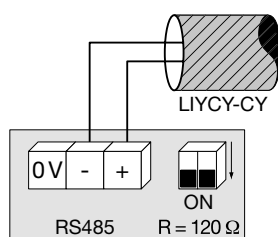


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

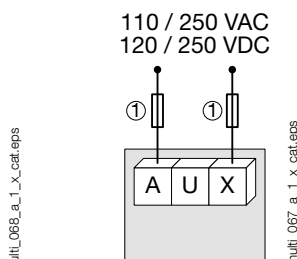
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Additional information

##### Communication via RS485 link



##### AC & DC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

#### References

Basic device		MULTIS L50
MULTIS L50		Reference 192J 9120
Optional plug-in modules		Reference
1 output		4825 0080
RS485 MODBUS® communication		4825 0082
3 inputs, 1 output		4825 0083
Accessories		
Description of accessories	To be ordered in multiples of	Reference
IP65 protection	1	4825 0089
Panel mounting kit for a 144 x 96 mm cut-out	1	4825 0088
Fuse holder for the protection of voltage inputs (type RM) 3 poles	4	5601 0018
Fuse holder for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 0017
Fuse type gG 10x38 0.5 A	10	6012 0000
Ferrite to be associated with communication modules	1	4899 0011
Current transformer range	1	See page 122

#### Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.





# COUNTIS E0x

Active energy meters

single-phase - direct 32/40 A

Single-circuit metering,  
measurement &  
analysis

**new**



## Function

The **COUNTIS E0x** is a modular active electrical energy meter displaying the total energy consumed (kWh), allowing direct connection up to 32/40 A. COUNTIS E02, E04 and E06 are also MID-certified.

## Advantages

### Compactness

Only 1 module wide.

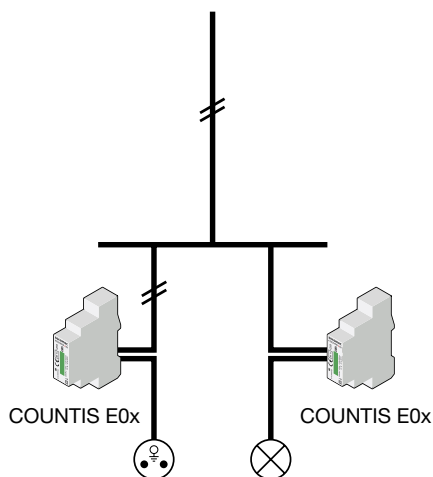
### Output (pulses)

The pulse output enables the kWh consumption to be reported to a remote system (PC/BMS) so that it can be analysed for billing, energy saving or energy cost management purposes.

### MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

## Functional diagram



## Common characteristics

- Compact dimensions.
- Measurement accuracy: 1%.
- Displayed on backlit screen.

## The solution for

- > Industry
- > Marinas
- > Shopping centers
- > Data center



## Strong points

- > Compactness
- > Output (pulses)
- > MID certified B+D module
- > RS485 (MODBUS) and M-Bus communication

## MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



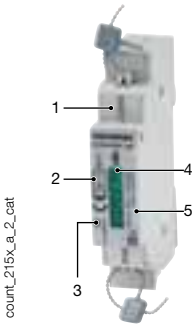
## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

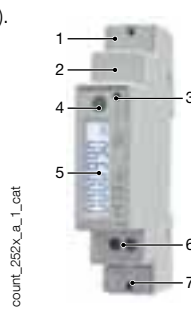


Models	Model-related specifications
E00	Pulse output
E02	Pulse output + MID
E03	Dual tariff + Pulse output + RS485 MODBUS communication
E04	Dual tariff + Pulse output + RS485 MODBUS communication + MID
E05	Dual tariff + Pulse output + M-Bus communication
E06	Dual tariff + Pulse output + M-Bus communication + MID

## Front panel

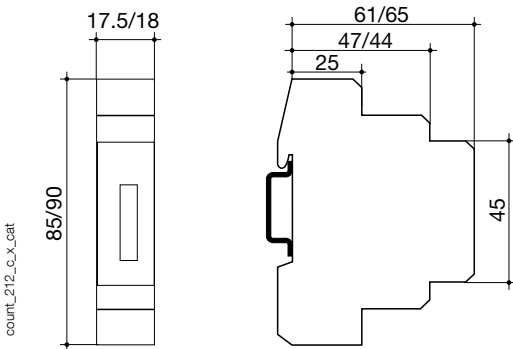


1. Terminal shrouds (COUNTIS E02/E04/E06).
2. MID marking (COUNTIS E02/E04/E06).
3. Metrological LED (2000 pulses/kWh for E00/E02 and 5000 pulses/kWh for E03/E04/E05/E06).
4. kWh display.
5. Serial number (COUNTIS E02).



1. Neutral terminal
2. M-Bus/MODBUS connection
3. Metrological LED
4. Navigation button.
5. Backlit LCD display
6. Pulse output
7. Current and voltage terminals

## Case



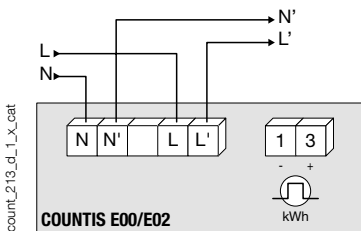
	COUNTIS E00/E02	COUNTIS E03 ... E06
Type	modular	modular
Number of modules	1	1
Dimensions W x H x D (mm)	17.5 x 85 x 61	18 x 90 x 65
Case degree of protection	IP 20	IP 20
Front degree of protection	IP 50	IP 50
Display type	5 + 1 digits LCD	7 digit LCD with backlighting
Rigid cable cross-section	10 mm <sup>2</sup>	1.5 ... 6 mm <sup>2</sup>
Flexible cable cross-section	6 mm <sup>2</sup>	1.5 ... 6 mm <sup>2</sup>
Weight	150 g	100 g E03/04 80 g E05/06

## Electrical characteristics

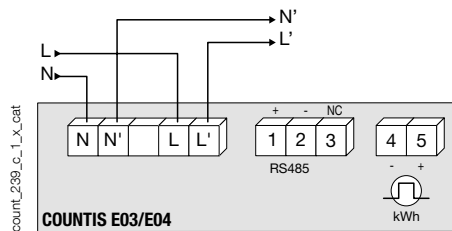
Current measurement (TRMS)	COUNTIS E00/E02	COUNTIS E03 ... 06
Type	direct input	
Input consumption	< 2 VA	< 0.5 VA
Permanent overload	32 A	40 A
Intermittent overload	30 I <sub>max</sub> over 10 ms	
Minimum current measured	20 mA	
Voltage measurements (TRMS)		
Range of measurement	196 ... 264 VAC	184 ... 276 VAC
Input consumption	8 VA	Max. 1.5 VA for E03/04 Max. 1 VA for E05/06
Permanent overload	264 VAC	280 VAC
Energy accuracy		
Active (according to IEC 62053-21)	Class 1	
Active (according to EN 50470)	Class B	
Power supply		
Self-powered	yes	

Output (pulses)	COUNTIS E00/E02	COUNTIS E03 ... 06
Number	1	
Type of optocoupler	Max. 15 VDC	27 VDC - 27 mA (IEC 62053-31)
Fixed pulse weight	100 Wh	
Pulse duration	100 ms	
Operating conditions		
Operating temperature	-10 ... +55°C	-25 ... +55°C
Storage temperature	-20 ... +70°C	-40 ... +75°C
Relative humidity	95%	80%
Communication	COUNTIS E03/E04	COUNTIS E05/E06
Link	RS485	Wired
Type	2 ... 3 half duplex wires	2 half duplex
Protocol	MODBUS in RTU mode	M-Bus
Speed	2400 ... 38400 bauds	300, 2400, 9600 bps

## Terminals and connections

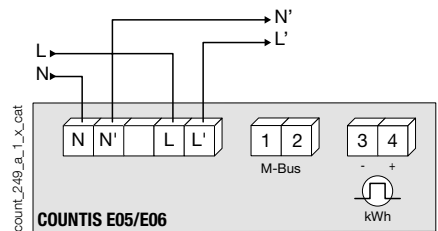


N - L: network input.



N' - L': network output.

1 - 3: pulse output.



## References

Type	COUNTIS E00 Reference 4850 3019	COUNTIS E02 Reference 4850 3020	COUNTIS E03 Reference 4850 3039	COUNTIS E04 Reference 4850 3040	COUNTIS E05 Reference 4850 3041	COUNTIS E06 Reference 4850 3042
Direct 32 A						
Direct 32 A - MID						
Direct 40 A - Dual tariff + RS485 MODBUS communication						
Direct 40 A - Dual tariff + RS485 MODBUS communication + MID						
Direct 40 A - Dual tariff + M-Bus communication						
Direct 40 A - Dual tariff + M-Bus communication + MID						



# COUNTIS E1x

Active-energy meters

single phase - direct 63/80 A

Single-circuit metering,  
measurement &  
analysis

**new**



COUNTIS E14 - MID



COUNTIS E12 - MID

## Function

The **COUNTIS E1x** is a modular active electrical energy meter displaying the energy and power consumed (kWh and kW). It is designed for single-phase load metering and is used for direct connections of up to 63 or 80 A (depending on the model).

## Common characteristics

- Measurement accuracy: 1%.
- Displayed on backlit screen.

## Advantages

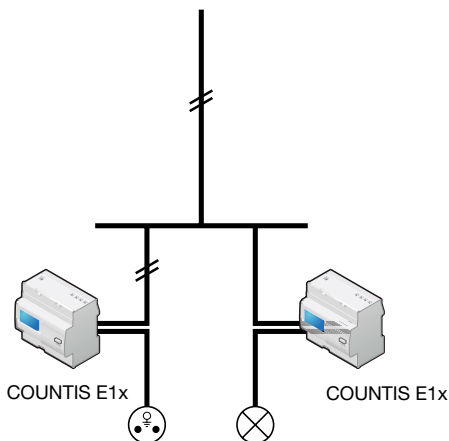
### RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs

To easily centralise your consumption, COUNTIS E1x devices have either one pulse output, one RS485 output (MODBUS), M-Bus or Ethernet Modbus TCP communication. With RS485 communication models, you can configure your meters remotely.

### Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

## Functional diagram



### MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

## The solution for

- > Marinas
- > Shopping centers
- > Data centers



## Strong points

- > RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module

## MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



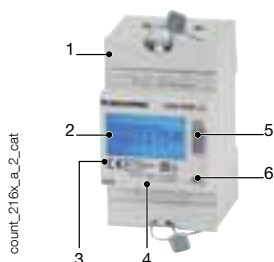
## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

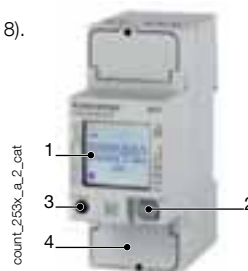


Models	Model-related specifications
E10	Pulse output
E11	Dual tariff (2 partial indices) + pulse output
E12	Dual tariff + pulse output + MID
E13	Dual tariff + pulse output + MODBUS RS485 communication
E14	Dual tariff + pulse output + MODBUS RS485 communication + MID
E15	Dual tariff + pulse output + M-BUS communication
E16	Dual tariff+ pulse output + M-BUS communication + MID
E17	Dual tariff + Ethernet
E18	Dual tariff + Ethernet + MID

## Front panel

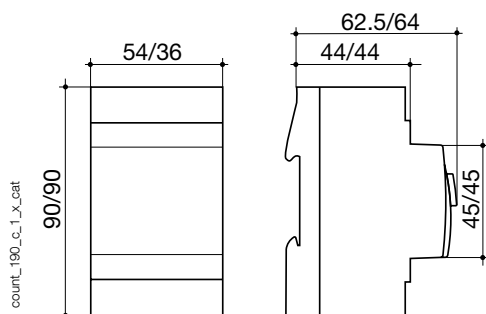


1. Terminal shrouds (COUNTIS E12/E14/E16/E18).
2. Backlit LCD display.
3. MID marking (COUNTIS E12/E14/E16/E18).
4. Serial number.
5. Navigation button.
6. Metrological LED (1000 pulses/kWh).



1. Backlit LCD display.
2. Navigation button.
3. Metrological LED (1000 pulses/kWh).
4. Voltage, current and neutral terminals.

## Case



	COUNTIS E10 ... E12	COUNTIS E13 ... E18
Type	modular	modular
Number of modules	3	2
Dimensions W x H x D	54 x 90 x 62.5 mm	36 x 90 x 64 mm
Case degree of protection	IP 20	IP 20
Front degree of protection	IP 51	IP 51
Display type	backlit LCD	backlit LCD
Rigid cable cross-section	1.5 ... 16 mm <sup>2</sup>	1.5 ... 35 mm <sup>2</sup>
Flexible cable cross-section	1 ... 16 mm <sup>2</sup>	1.5 ... 35 mm <sup>2</sup>
Weight	170 g	215 g E13/14/17/18 205 g E15/16

## Electrical characteristics

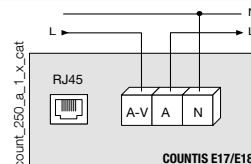
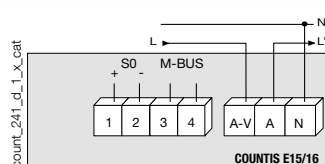
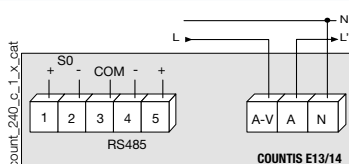
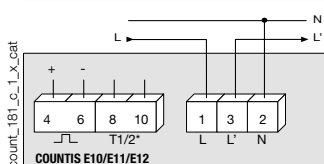
Measurement of currents	COUNTIS E10...E12	COUNTIS E13...E18
Type	single phase - direct 63 A	single phase - direct 80 A
Input consumption	max. 0.8 VA	max. 0.5 VA
Startup current ( $I_{st}$ )	40 mA	20 mA
Minimum current ( $I_{min}$ )	0.5 A <sup>(1)</sup>	0.25 A
Transition current ( $I_{tr}$ )	1 A <sup>(2)</sup>	0.5 A
Reference current ( $I_{ref}$ )	10 A <sup>(3)</sup>	5 A
Permanent overload ( $I_{max}$ )	63 A	80 A
Intermittent overload	1890 A over 10 ms	30 $I_{max}$ over 10 ms
Voltage measurement		
Range of measurement	230 V ± 20%	230 ... 240 V ± 20%
Consumption (VA)	Max. 0.5 VA	3.5 VA max E13/14/17/18 7.5 VA max E15/16
Permanent overload	280 V phase-neutral	290 V phase-neutral
Energy accuracy		
Active (according to IEC 62053-21)	Class 1	Class 1
Active (according to EN 50470)	Class B	Class B
Power supply		
Self-powered	Yes	
Frequency	50/60 Hz	

(1)  $I_{min} \leq 0.5 \cdot I_{tr}$  (2) Guaranteed precision class of between  $I_{tr}$  and  $I_{max}$ .

(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS devices.

Output (pulses)	COUNTIS E10 ... E12	COUNTIS E13 ... E18	
Optocoupler type (IEC 62053-31)	Class A (20 ... 30 VDC)	27 VDC - 27 mA	
Number	1	1	
Fixed pulse weight	100 Wh		
Pulse duration	100 ms	50 ± 2 ms ON time 30 ± 2 ms min OFF time	
Operating conditions			
Operating temperature	-10 ... 55°C	-25 ... 55°C	
Storage temperature	-20 ... 70°C	-25 ... 75°C	
Relative humidity	85%	80%	
Communication			
Link	RS485	Wired	RJ45
Type	2 half duplex 2-3 half duplex (E13/E14)		Full duplex
Protocol	MODBUS <sup>®</sup> RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Baudrate	1200 ... 115200 bauds	300 ... 9600 bauds	10/100 Mbps

## Connection



\* Not available on the COUNTIS E10.

## References

Type	COUNTIS E10	COUNTIS E11	COUNTIS E12	COUNTIS E13	COUNTIS E14	COUNTIS E15	COUNTIS E16	COUNTIS E17	COUNTIS E18
Direct 63 A	Reference 4850 3000								
Direct 63 A - Dual tariff		4850 3001							
Direct 63 A - Dual tariff + MID			4850 3002						
Direct 80 A - Dual tariff + MODBUS communication via RS485				4850 3043					
Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID					4850 3044				
Direct 80 A - Dual tariff + M-Bus communication						4850 3045			
Direct 80 A - Dual tariff + M-Bus communication + MID							4850 3046		
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication								4850 3047	
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication + MID									4850 3048





# COUNTIS E2x

Active-energy meters

three-phase - direct 63/80 A

Single-circuit metering,  
measurement &  
analysis

**new**



COUNTIS E24 - MID

count\_254\_a\_1\_cat



COUNTIS E20

count\_232\_a

## The solution for

- > Industry
- > Infrastructure
- > Data center



## Strong points

- > RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- > Multi-tariff
- > Detection of connection errors
- > MID certified B+D module

## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3



## Function

The **COUNTIS E2x** is a modular active electrical energy meter displaying the energy and power consumed (kWh and kW). It is designed for three-phase networks and allows a direct connection of up to 63/80 A.

## Common characteristics

- Measurement accuracy: 1%
- Displayed on backlit screen
- Detection of connection errors

## Advantages

### RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To easily centralise your consumption, COUNTIS E2x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output. With RS485 communication models, you can configure your meters remotely.

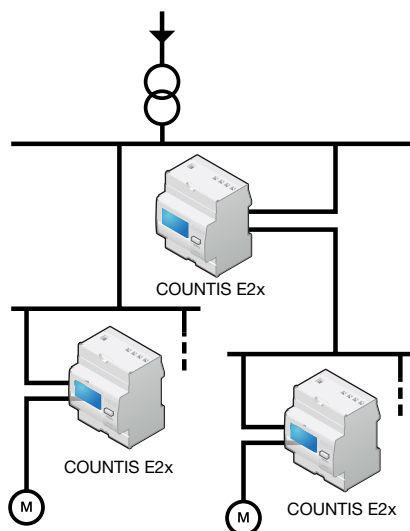
### Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

### Guaranteed connection (E20/21)

The product is protected against phase/neutral inversion and detects wiring errors. This makes it easier to start up, ensures the device is functioning properly and reduces the cost of the installation.

## Functional diagram

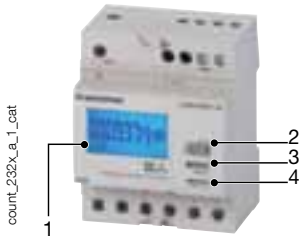


### MID certified B+D module

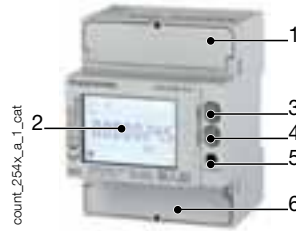
COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Models	Model-related specifications
E20	Pulse output
E21	Dual tariff (2 partial indices) + pulse output
E22	Dual tariff + pulse output + MID
E23	Dual tariff + pulse output + MODBUS RS485 communication
E24	Dual tariff + pulse output + MODBUS RS485 communication + MID
E25	Dual tariff + pulse output + M-BUS communication
E26	Dual tariff+ pulse output + M-BUS communication + MID
E27	Dual tariff + pulse output + Ethernet
E28	Dual tariff + pulse output + Ethernet + MID

## Front panel

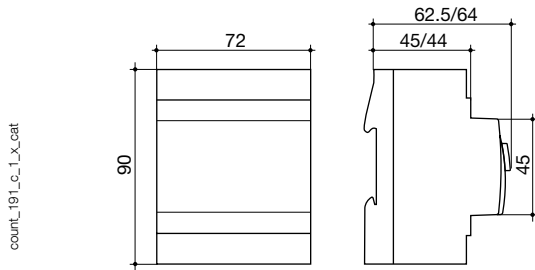


1. Backlit LCD display.
2. Navigation button.
3. Reset button.
4. Metrological LED (1000 pulses/kWh).



1. Neutral terminal
2. Backlit LCD display
3. Navigation button.
4. ENTER key
5. Metrological LED
6. Current and voltage terminals

## Case

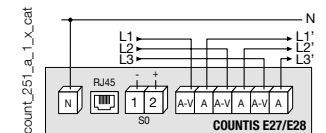
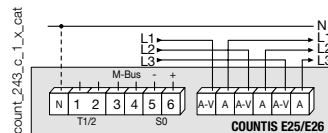
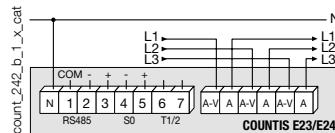
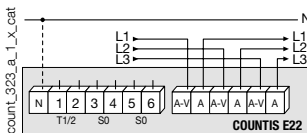
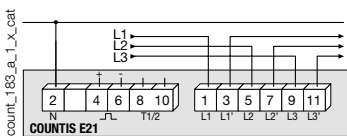
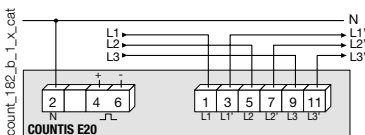


	COUNTIS E20 ... E21	COUNTIS E23 ... E28
Type	modular	modular
Number of modules	4	4
Dimensions W x H x D	72 x 90 x 62.5 mm	72 x 90 x 64 mm
Case degree of protection	IP 20	IP 20
Front degree of protection	IP 51	IP 51
Display type	Backlit LCD	8-digit backlit LCD
Rigid cable cross-section	1.5 ... 16 mm <sup>2</sup>	1.5 ... 35 mm <sup>2</sup>
Flexible cable cross-section	1 ... 16 mm <sup>2</sup>	1.5 ... 35 mm <sup>2</sup>
Weight	170 g	440 g

## Electrical characteristics

Measurement of currents	COUNTIS E20 ... E21	COUNTIS E22 ... E28	
Type	three-phase - direct 63 A	three-phase - direct 80 A	
Input consumption	0.8 VA max. per phase	0.5 VA max. per phase	
Startup current ( $I_{st}$ )	40 mA	20 mA	
Minimum current ( $I_{min}$ )	0.5 A <sup>(1)</sup>	0.25 A	
Transition current ( $I_{tr}$ )	1 A <sup>(2)</sup>	0.5 A	
Reference current ( $I_{ref}$ )	10 A <sup>(3)</sup>	5 A	
Permanent overload ( $I_{max}$ )	63 A	80 A	
Intermittent overload	1890 A over 10 ms	30 $I_{max}$ over 10 ms	
Voltage measurement			
Range of measurement	230 ... 400 V ±20%	230 ... 240 V ±20%	
Consumption (VA)	Max. 2 VA	7.5 VA max (0.5 W) per phase E22/25/26 / 3.5 VA max (1 W) per phase E23/24/27/28	
Permanent overload	280 V phase-neutral / 480 V phase-phase E20/21 290 V phase-neutral / 500 V phase-phase E22 ... E28		
Energy accuracy			
Active (according to IEC 62053-21)	Class 1	Class 1	
Active (according to EN 50470)	Class B	Class B	
Power supply			
Self-powered	Yes		
Frequency	50/60 Hz		
Output (pulses)			
Optocoupler type (IEC 62053-31)	Class A (20 ... 30 VDC)	250 VAC/DC - 100 mA (E22) 27 VDC - 27 mA (E23 ... E28)	
Number	1	2 (E22) 1 (E23 ... E28)	
Fixed pulse weight	100 Wh		
Pulse duration	100 ms	50 ± 2 ms ON time 30 ± 2 ms min OFF time	
Operating conditions			
Operating temperature	-10 ... 55°C	-25 ... 55°C	
Storage temperature	-20 ... 70°C	-25 ... 75°C	
Relative humidity	85%	80%	
Communication			
Link	RS485	Wired	RJ45
Type	2 half duplex 2 to 3 half duplex (E23/24)		Full duplex
Protocol	MODBUS <sup>®</sup> RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Baudrate	1200 ... 115200 bauds	300 ... 9600 bauds	10/100 Mbps

## Connection



(1)  $I_{min} \leq 0.5 \cdot I_{tr}$  (2) Guaranteed precision class of between  $I_{tr}$  and  $I_{max}$   
(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS devices.

## References

Type	COUNTIS E20 Reference	COUNTIS E21 Reference	COUNTIS E22 Reference	COUNTIS E23 Reference	COUNTIS E24 Reference	COUNTIS E25 Reference	COUNTIS E26 Reference	COUNTIS E27 Reference	COUNTIS E28 Reference
Direct 63 A	4850 3003								
Direct 63 A - Dual tariff		4850 3004							
Direct 80 A - Dual tariff + MID			4850 3049						
Direct 80 A - Dual tariff + MODBUS communication via RS485				4850 3050					
Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID					4850 3051				
Direct 80 A - Dual tariff + M-Bus communication						4850 3052			
Direct 80 A - Dual tariff + M-Bus communication + MID							4850 3053		
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication								4850 3054	
Direct 80 A - Dual tariff + Ethernet Modbus TCP + MID									4850 3055





# COUNTIS E3x

## Active energy meters

three-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E32 - MID

### Function

The **COUNTIS E3x** is a modular active electrical energy meter displaying the energy and power consumed (kWh and kW) directly on its backlit LCD display. It is designed for three-phase load metering and is used for direct connections of up to 100 A.

COUNTIS E32, E34 and E36 are MID certified.

### Common characteristics

- Measurement accuracy: 1 %
- Backlit LCD display.
- Detects connection errors.

### Advantages

#### RS485 communication (MODBUS or M-BUS) or pulse output

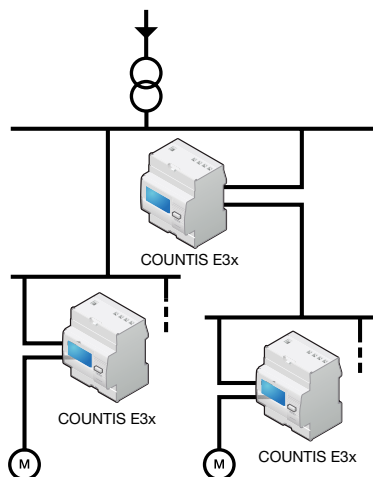
To enable the remote reporting of energy consumption, COUNTIS E3x are provided with either a pulse output or an RS485 communication output, with MODBUS or M-BUS protocol.

In addition to their reporting functions, COUNTIS E3x with RS485 can be configured remotely and enable access to multi-measurement values.

#### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

### Principle diagram



count\_225\_a\_1\_x\_cat

#### MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

#### Bi-directional metering (available only on the E33 and E35)

This function is for metering energy production or energy consumption.

#### Multi-measurement and load curve

Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 7 day period via communication.

### The solution for

- Industry
- Infrastructure
- Data centre



### Strong points

- RS485 communication (MODBUS or M-BUS) or pulse output
- Detection of connection errors
- MID certified B+D module
- Bi-directional metering
- Multi-measurement and load curve

### MID certification

- COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- COUNTIS E MID feature tamper-proof components to prevent fraud.



### Conformity to standards

- IEC 62053-21 class 1
- IEC 62053-31
- IEC 62053-11
- EN 50470-1
- EN 50470-3



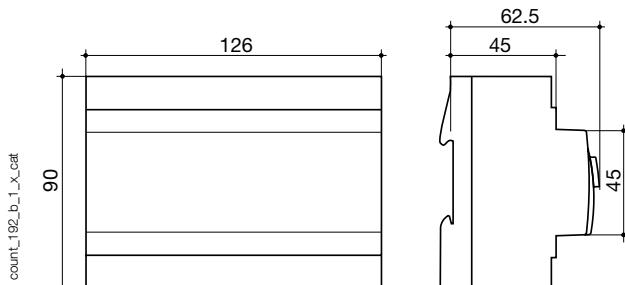
Models	Key characteristics
E30	Pulse output
E31	Dual tariff (2 partial counters) + Pulse output
E32	Dual tariff + MID + Pulse output
E33	Dual tariff + RS485 MODBUS communication
E34	Dual tariff + RS485 MODBUS communication + MID
E35	Dual tariff + M-BUS communication
E36	Dual tariff + M-BUS communication + MID

## Front panel



1. Terminal shrouds (COUNTIS E32, E34 and E36).
2. Backlit LCD display.
3. MID marking (COUNTIS E32, E34 and E36).
4. Serial number (COUNTIS E32, E34 and E36).
5. Navigation key.
6. Reset key.
7. Metrological LED.

## Case



Type	modular
Number of modules	7
Dimensions W x H x D	126 x 90 x 62.5 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Rigid cable cross-section	2.5 ... 35 mm <sup>2</sup>
Flexible cable cross-section	2.5 ... 35 mm <sup>2</sup>
Weight	490 g

## Electrical characteristics

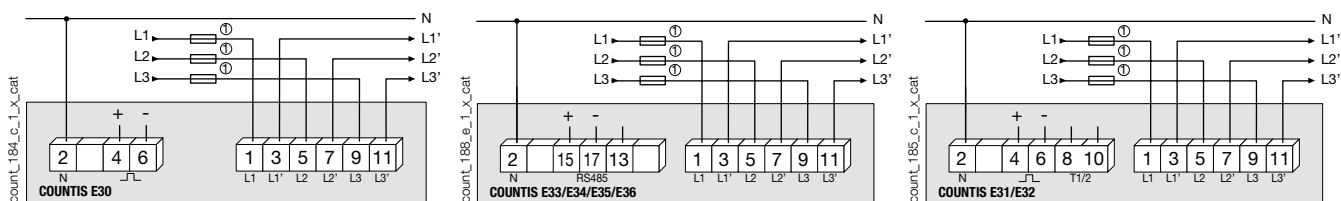
Current measurement		
Type	three-phase - direct 100 A	
Input consumption	0.5 VA max. per phase	
Startup current ( $I_{sa}$ )	80 mA	
Minimum current ( $I_{min}$ )	0.5 A <sup>(1)</sup>	
Transition current ( $I_{tr}$ )	2 A <sup>(2)</sup>	
Reference current ( $I_{ref}$ )	20 A <sup>(3)</sup>	
Permanent overload ( $I_{max}$ )	100 A	
Intermittent overload	3000 A max for 10 ms	
Voltage measurement		
Range of measurement	230 ... 400 V $\pm$ 20 %	
Consumption (VA)	2	
Permanent overload	280 V phase-neutral / 480 V phase-phase	
Energy accuracy		
Active (according to IEC 62053-21)	Class 1	
Active (according to EN 50470)	Class B	
Power supply		
Self-supplied	yes	
Frequency	50 / 60 Hz	
Output (pulsed) (COUNTIS E30/E31/E32)		
Number	1	
Type of optocoupler	IEC 62053-31 class A (20 ... 30 VDC)	
Fixed pulse weight	100 Wh	
Pulse duration	100 ms	
Operating conditions		
Operating temperature	-10 ... 55 °C	
Storage temperature	-20 ... 70 °C	
Relative humidity	85 %	
Communication		
Link	COUNTIS E33/34	COUNTIS E35/E36
Type	RS485	Connection
Protocol	2 half duplex wires	2 half duplex wires
Speed	MODBUS RTU	M-BUS
	4800 ... 38 400 bauds	300 ... 9600 bauds

(1)  $I_{min} \leq 0.5 \cdot I_{tr}$

(2) The accuracy class is guaranteed between  $I_{tr}$  and  $I_{max}$ .

(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS.

## Connection



1. 100 A gG / Am fuses max.

## References

Type	COUNTIS E30 Reference	COUNTIS E31 Reference	COUNTIS E32 Reference	COUNTIS E33 Reference	COUNTIS E34 Reference	COUNTIS E35 Reference	COUNTIS E36 Reference
100 A direct	4850 3005						
100 A direct - Dual tariff		4850 3006					
100 A direct - Dual tariff - MID			4850 3007				
100 A direct - Dual tariff with RS485 MODBUS com. <sup>(1)</sup>				4850 3012			
100 A direct - Dual tariff with RS485 MODBUS com. - MID <sup>(1)</sup>					4850 3013		
100 A direct - Dual tariff with M-BUS communication <sup>(1)</sup>						4850 3025	
100 A direct - Dual tariff with M-BUS communication - MID <sup>(1)</sup>							4850 3026
Management software for COUNTIS	See page 156						

(1) 4 tariffs through RS485 communication.



# COUNTIS E4x

## Active energy meters

three-phase - via CT up to 6000 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E44 - MID - (3000 A MID - 6000 A not MID)

### Function

The COUNTIS E4x is a modular active and reactive electrical energy meter displaying the energies and active power consumed (kWh, kVAh and kW) directly on its backlit LCD display. It is designed for three-phase load metering with connection via CT and is suitable for applications of up to 6000 A (3000 A for MID).  
COUNTIS E42, E44 and E46 are MID certified.

### Common characteristics

- Measurement accuracy: 1 % / 0,5%(MID).
- Backlit LCD display.
- Detects connection errors.

### Advantages

#### RS485 communication (MODBUS or M-BUS) or pulse output

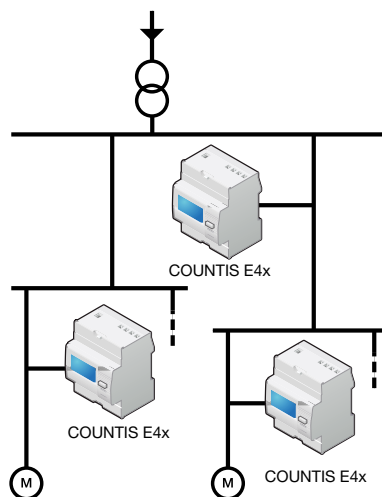
To enable the remote reporting of energy consumption, COUNTIS E4x are provided with either a pulse output or an RS485 communication output, with MODBUS or M-BUS protocol.

In addition to their reporting functions, COUNTIS E4x with RS485 can be configured remotely and enable access to multi-measurement values.

#### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

### Principle diagram



### The solution for

- > Industry
- > Infrastructure
- > Data centre



### Strong points

- > RS485 communication (MODBUS or M-BUS) or pulse output
- > Detection of connection errors
- > MID certified B+D module
- > Bi-directional metering
- > Multi-measurement and load curve

### MID certification

- > COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62053-11
- > EN 50470-1
- > EN 50470-3



#### MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

#### Bi-directional metering (available on E43 and E45)

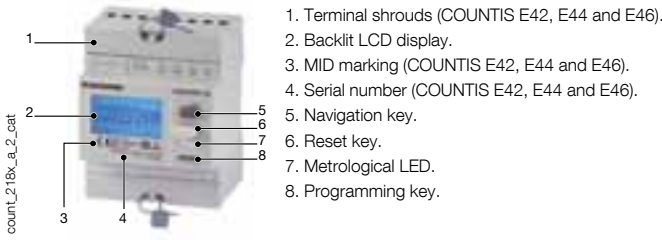
This function is for metering energy production or energy consumption.

#### Multi-measurement and load curve

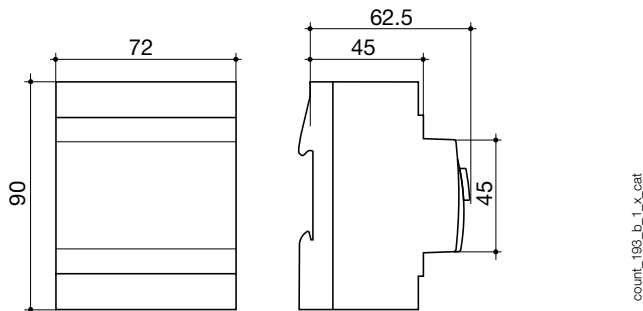
Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 7 day period via communication.

Models	Key functions
E40	Pulse output
E41	Dual tariff (2 partial counters) + Pulse output
E42	Dual tariff + MID + Pulse output
E43	Dual tariff + RS485 MODBUS communication
E44	Dual tariff + RS485 MODBUS communication + MID
E45	Dual tariff + M-BUS communication
E46	Dual tariff + M-BUS communication + MID

## Front panel



## Case



Type	modular
Number of modules	4
Dimensions W x H x D	73 x 90 x 62.5 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Rigid cable cross-section	1.5 ... 10 mm <sup>2</sup>
Flexible cable cross-section	1 ... 6 mm <sup>2</sup>
Weight	230 g

## Electrical characteristics

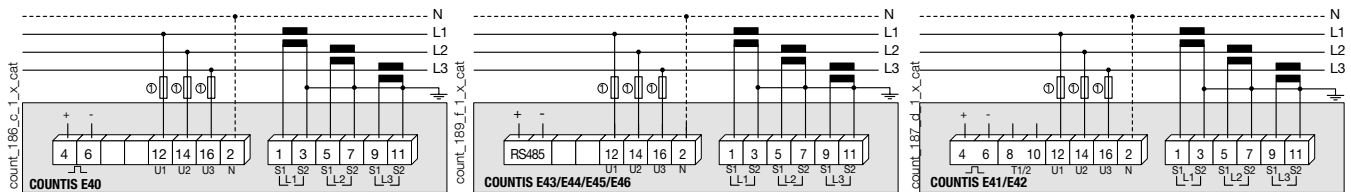
Current measurement	
Type	three-phase on CT/5A up to 6000 A (3000 A for MID products)
Input consumption	0.2 VA per phase
Startup current ( $I_{st}$ )	10 mA
Minimum current ( $I_{min}$ )	50 mA <sup>(1)</sup>
Transition current ( $I_{tr}$ )	250 mA <sup>(2)</sup>
Reference current ( $I_{ref}$ )	5 A <sup>(3)</sup>
Permanent overload ( $I_{max}$ )	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurement	
Range of measurement	230 ... 400 V $\pm$ 20 %
Consumption (VA)	2 VA
Permanent overload	280 V phase-neutral / 480 V phase-phase
Energy accuracy	
Active (according to IEC 62053-21)	Class 0,5s
Active (according to EN 50470)	Class C (COUNTIS E42/44/E46)
Power supply	
Self-supplied	yes
Frequency	50 / 60 Hz
Output (pulsed) (COUNTIS E40/E41/E42)	
Number	1
Type of optocoupler	IEC 62053-31 Class A (20 ... 30 VDC)
Pulse weight	100 Wh, 1 kWh, 10 kWh, 100 kWh
Pulse duration	50 ms, 100 ms, 200 ms, 400 ms, 800 ms, 1000 ms, 1500 ms
Operating conditions	
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Relative humidity	85 %
Communication	
Link	COUNTIS E43/E44: RS485 COUNTIS E45/E46: Connection
Type	2 half duplex wires
Protocol	MODBUS RTU / M-BUS
Speed	4800 ... 38400 bauds / 300 ... 9600 bauds

(1)  $I_{min} \leq 0.5 \cdot I_{tr}$   
(2) The accuracy class is guaranteed between  $I_{tr}$  and  $I_{max}$ .  
(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS.

## Connection

### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PT1, an accessory which is included in this catalogue. Please consult us.



1. Fuses 0.5 A gG / 0.5 A class CC.

## References

Type	COUNTIS E40 Reference	COUNTIS E41 Reference	COUNTIS E42 Reference	COUNTIS E43 Reference	COUNTIS E44 Reference	COUNTIS E45 Reference	COUNTIS E46 Reference
Via CT	4850 3008						
Via CT - Dual tariff		4850 3009					
Via CT - Dual tariff - MID			4850 3015				
Via CT - Dual tariff with RS485 MODBUS com. <sup>(1)</sup>				4850 3017			
Via CT - Dual tariff with RS485 MODBUS com. - MID <sup>(1)</sup>					4850 3014		
Via CT - Dual tariff with M-BUS com. <sup>(1)</sup>						4850 3027	
Via CT - Dual tariff with M-BUS com. - MID <sup>(1)</sup>							4850 3028
Management software for COUNTIS	See page 156						

(1) 4 tariffs through RS485 communication.



# COUNTIS E5x

## Active energy meters

three-phase - via CT up to 6000 A

Single-circuit metering,  
measurement &  
analysis



count\_196\_b\_1\_cat

COUNTIS E53 up to 6000 A via CT

### The solution for

- > Industry
- > Infrastructure
- > Data centres



### Strong points

- > RS485 MODBUS communication or pulse output
- > Large backlit LCD display
- > Detection of connection errors
- > Direct display of multi-measurement and metering values

### Conformity to standards

- > IEC 62053-23 class 2
- > IEC 62053-22 class 0.5S
- > IEC 61557-12



### Management software

- > To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools. See page 156.

### Function

The COUNTIS E5x is a panel mounted active and reactive electrical energy meter displaying energy and multi-measurement values directly on its large backlit LCD display. It is designed for utilisation on three-phase or single-phase networks with connection via CT and is suitable for applications of up to 6000 A. The CT ratio can be configured by the user via the keypad and the display, or via RS485 MODBUS communication (E53).

### Common characteristics

- Measurement accuracy: 0.5%.
- Large backlit LCD display.
- Direct access to multi-measurement and metering values.
- Detects connection errors.

### Advantages

#### RS485 MODBUS communication or pulse output

To enable the remote reporting of energy consumption, COUNTIS E5x are provided with either a pulse output (E50) or an RS485 MODBUS communication output (E53). Remote configuration of the Countis E53 is possible via RS485 MODBUS communication.

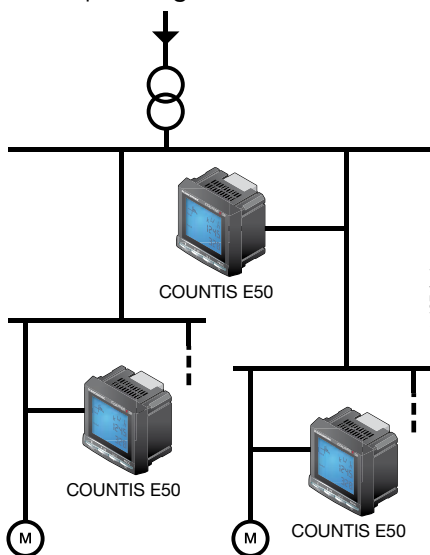
#### Detection of connection errors

The COUNTIS E5x is protected against phase/neutral inversion and has an integrated test function which can be utilised to detect wiring errors. This function enables CT installation errors to be corrected without having to remake connections. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

#### Large backlit LCD display

Thanks to its large backlit LCD display and its multiple viewing screens with direct pushbutton access, COUNTIS E5x provide clear readings and are easy to use.

### Principle diagram



count\_197\_b\_1\_x\_cat

They directly display a number of total/partial metering and multi-measurement values :  $\pm$  kWh,  $\pm$  kvarh, kVAh, I, U, V, S, PF, etc.

#### Direct display of multi-measurement and metering values

##### Multi-measurement

- Currents: instantaneous: I1, I2, I3
- Voltages: instantaneous: V1, V2, V3, U12, U23, U31
- Power:
  - instantaneous: 3P, 3Q, 3S
  - maximum average: 3P
- Power factor:
  - instantaneous: 3PF

##### Metering

- Active energy:  $\pm$  kWh
- Reactive energy:  $\pm$  kvarh
- Apparent energy: kVAh

models	Key characteristics
E50	Pulse output
E53	RS485 MODBUS communication

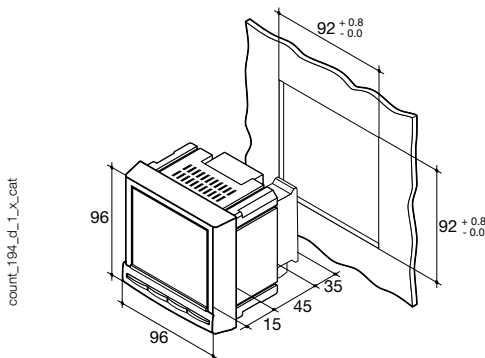


#### Front panel



1. Backlit LCD display
2. Energy display and test function key
3. Power and power factor display key
4. Current and voltage display key
5. Programming mode access key

#### Case



Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	backlit LCD display
Voltage and current connection cross-section	0.5 ... 2.5 mm <sup>2</sup>
Current connection cross-section	1.5 ... 6 mm <sup>2</sup>
Weight	370 g

(1)  $I_{min} \leq 0.5 \cdot I_r$

(2) The accuracy class is guaranteed between  $I_r$  and  $I_{max}$ .

(3)  $I_{ref} = I_{(n)}$  (base current) =  $10 \cdot I_{(n)}$  for direct connection COUNTIS.

#### Electrical characteristics

##### Current measurement

Type	three-phase on CT/5A up to 6000 A
Input consumption	< 0.6 VA
Startup current ( $I_{st}$ )	40 mA
Minimum current ( $I_{min}$ )	50 mA <sup>(1)</sup>
Transition current ( $I_r$ )	250 mA <sup>(2)</sup>
Reference current ( $I_{ref}$ )	5 A <sup>(3)</sup>
Permanent overload ( $I_{max}$ )	6 A
Intermittent overload	50 A for 1 s

##### Voltage measurement

Range of measurement	86 ... 520 VAC
Input consumption	< 0.1 VA
Permanent overload	800 VAC

##### Energy accuracy

Reactive (according to IEC 62053-23)	Class 2
Active (according to IEC 62053-22)	Class 0.5S

##### Power supply

Self-supplied	no
Auxiliary power supply $U_s$	110 ... 400 VAC / 125... 350 VDC $\pm 10$ %
Frequency	45 ... 65 Hz

##### Output (pulsed)

Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	$\leq 10^8$

##### Operating conditions

Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 85 °C
Relative humidity	95 %

##### Communication

Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS <sup>®</sup> speed	1400 ... 38400 bauds

#### References

Type	COUNTIS E50 Reference	COUNTIS E53 Reference
Pulse output	4850 3010	
RS485 MODBUS communication <sup>(1)</sup>		4850 3011
Management software for COUNTIS	See page 156	

(1) 4 tariffs through RS485 communication.

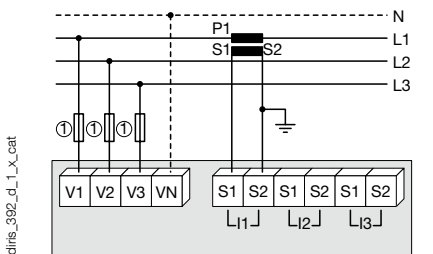
#### Connection

##### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.

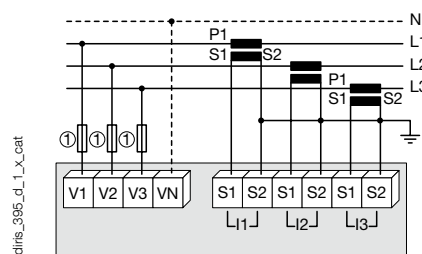
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

##### Low voltage balanced network 3/4 wires with 1 CT

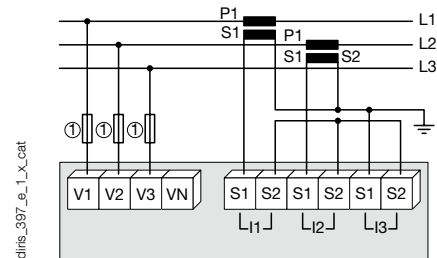


Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

##### Low voltage unbalanced network 3/4 wires with 3 CTs



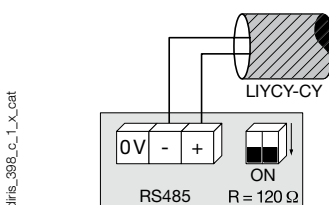
##### 3 wires with 2 CTs



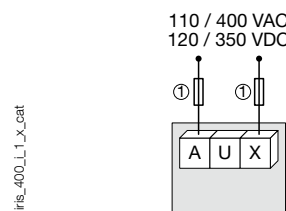
Use of 2 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

#### Additional information

##### Communication via RS485 link



##### AC & DC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.



# COUNTIS E63

## Active energy meters

3 x single-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis

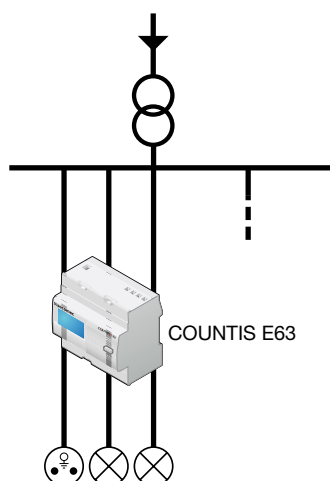


COUNTIS E63

### Function

The **COUNTIS E63** is a modular active electrical energy meter which provides metering for three single-phase loads, with direct connection of up to 100 A. It directly displays the total and partial energy and power (kWh and kW) consumed by each single-phase load.

### Principle diagram



count\_205\_a\_1\_x\_cat

### Advantages

#### Compact

Due to the integration of three single-phase meters in the same case (7 modules wide), the COUNTIS E63 provides significant space-saving.

#### Advanced multi-measurement functions

Advanced multi-measurement functions are available via RS485 MODBUS communication:

- Instantaneous currents: I1, I2, I3
- Instantaneous voltages: V1, V2, V3
- Instantaneous power: 3P, 3S
- Instantaneous power factors: 3PF
- Load curves for each of the 3 phases:  
Viewing of average positive active power consumption over a programmable period.

#### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

### The solution for

- > Data centres
- > Infrastructure



### Strong points

- > Compact
- > Advanced multi-measurement functions
- > Detection of connection errors

### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62053-11



### Management software

- > To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools. See page 156.

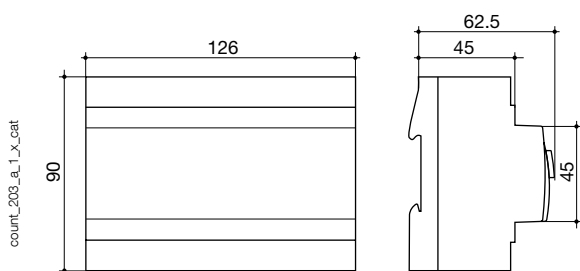


## Front panel



1. Backlit LCD display
2. Navigation key
3. Reset key
4. Metrological LED

## Case



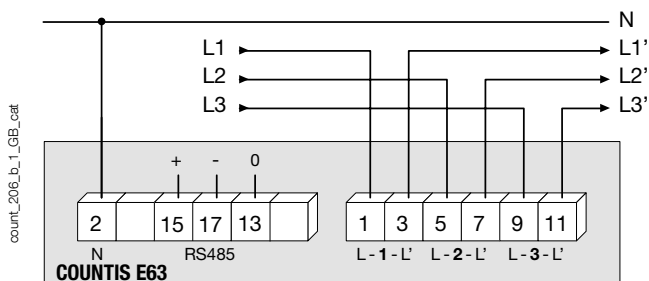
Type	modular
Number of modules	7
Dimensions W x H x D	126 x 90 x 62.5 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Rigid cable cross-section	2.5 ... 35 mm <sup>2</sup>
Flexible cable cross-section	2.5 ... 35 mm <sup>2</sup>
Weight	490 g

## Electrical characteristics

Current measurement	
Type	3 x single-phase - direct 100 A
Input consumption	0.5 VA max. per phase
Startup current ( $I_{st}$ )	80 mA
Minimum current ( $I_{min}$ )	0.5 A
Transition current ( $I_{tr}$ )	2 A
Reference current ( $I_{ref}$ )	20 A
Permanent overload ( $I_{max}$ )	100 A
Intermittent overload	3000 A max for 10 ms
Voltage measurement	
Range of measurement	230 ... 400 V $\pm$ 20 %
Consumption on inrush (VA)	2
Permanent overload	280 V phase-neutral / 480 V phase-phase
Energy accuracy	
Active (according to IEC 62053-21)	Class 1

Power supply	
Self-supplied	yes
Frequency	50 / 60 Hz
Operating conditions	
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Relative humidity	95 %
Communication	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	4800 ... 38400 bauds

## Connection



## References

Type	3 x single phase - 100 A direct with RS485 MODBUS communication	<b>COUNTIS E63</b> Reference 4850 3016
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# COUNTIS ECi<sub>x</sub>

## Multi-utility pulse concentrator

Single-circuit metering,  
measurement &  
analysis



COUNTIS ECi3

### The solution for

- > Data centres
- > Industry
- > Infrastructure



### Strong points

- > Up to 7 multi-utility meters and 2 analogue sensors
- > Load curves
- > RS485 MODBUS communication
- > Improved customisation

### Management software

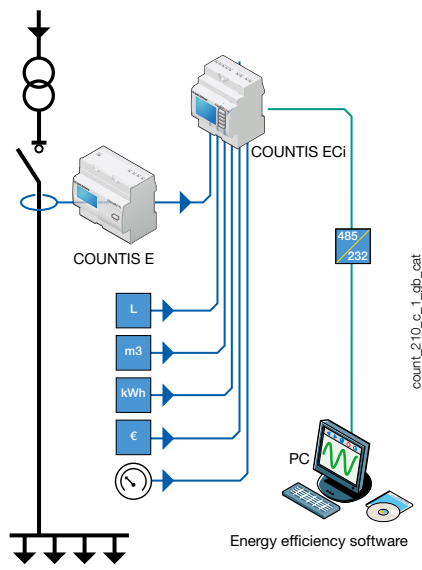
- > To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools. See page 156.

### Function

The **COUNTIS ECi<sub>x</sub>** is a multi-utility pulse concentrator which communicates via an RS485 link using MODBUS protocol.

It enables pulses from water, gas, compressed air, electricity meters and, for the COUNTIS ECi3, the output of analogue sensors (light, temperature, wind etc.) to be registered and stored. All data, ie. total and partial meters and load curves (available for all logical and analogue inputs) can be centralised via RS485 communication using MODBUS protocol.

### Principle diagram



### Advantages

#### Up to 7 multi-utility meters and 2 analogue sensors

- 7 digital inputs + 2 analogue inputs.
- Total, partial and programmable metering (day, week, month, year).

#### Load curves

Load curves are available for each of the 7 logical inputs.

A history of average values are available for the 2 analogue inputs (ECi3).

#### RS485 MODBUS communication

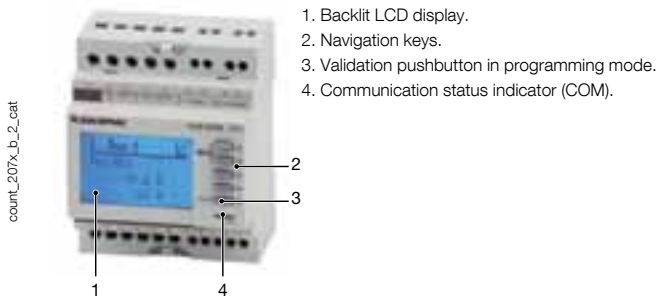
- Centralisation and transmission of pulse and analogue data to a supervision station.
- Remote configuration of COUNTIS ECi device.

#### Improved customisation

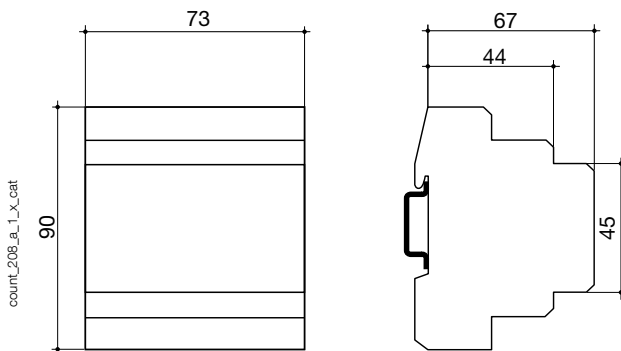
- Selection of the measuring unit: kWh, m<sup>3</sup>, liters.
  - Selection of the currency unit: €, K€, £, \$.
- Values can be displayed in the unit of your choice and energy costs can be directly calculated.

Models	Key characteristics
ECi2	7 insulated inputs
ECi3	7 insulated inputs + 2 analogue inputs.

## Front panel



## Case



Type	modular
Number of modules	4
Dimensions W x H x D	73 x 90 x 67 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Terminal blocks type	fixed
Rigid cable cross-section	1 ... 10 mm <sup>2</sup>
Flexible cable cross-section	0.5 ... 6 mm <sup>2</sup>
Weight	215 g

## Characteristics

### Auxiliary power supply

Self-supplied	no
Alternating voltage	110 / 400 VAC
Direct voltage	120 / 300 VDC
Tolerance	± 10 %
Frequency	45 / 65 Hz
Consumption	5 VA
Insulation voltage	3.5 kV

### Communication

Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS <sup>®</sup> speed	9600 ... 38400 bauds

### Inputs

Number	7
Control voltage (integrated)	10 ... 30 VDC
Minimum signal width	10 ms
Maximum signal width	2 s
Minimum duration between 2 pulses	30 ms
Edge triggering	rising

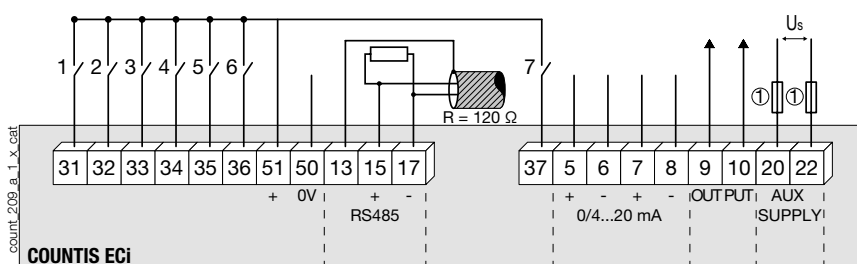
### Analogue inputs (ECi3)

Number	2
Current	25 mA
Accuracy	0.5 %
Response time	500 ms
Input resistance	200 Ω
Consumption	0.1 VA

### Operating conditions

Operating temperature	-10 ... +55 °C
Storage temperature	-20 ... +70 °C
Relative humidity	95 %

## Connection



- 31: logical input n°1.
- 32: logical input n°2.
- 33: logical input n°3.
- 34: logical input n°4.
- 35: logical input n°5.
- 36: logical input n°6.
- 37: logical input n°7.

- 13-15-17: RS485 link.
- 5-6: Analogue input n°1.
- 7-8: Analogue input n°2.
- 9-10: output.
- 20-22: power supply  
U=110...400 VAC ± 10 %.

51-50: Inputs internal/  
external power supply.

1. 0.5 A gG fuses.

## References

Auxiliary power supply $U_s$	COUNTIS ECi2 Reference	COUNTIS ECi3 Reference
230 / 400 VAC	4853 0000	
230 / 400 VAC + 2 analogue inputs		4853 0001
Description of accessories	Reference	Reference
Panel mounting kit	192J 8015	192J 8015
Management software for COUNTIS	See page 156	



# Current transformers

## Measurement devices

from 5 to 5000 A

Current transformers



### The solution for

- > Industry
- > Office buildings



### Strong points

- > An adapted accuracy class
- > A wide range of ratings and dimensions
- > Quick and easy to mount

### Conformity to standards

- > IEC 61869-2
- > IEC 61439-1



### Available on request

SOCOMECC also offer customised solutions:

- > 1 A secondary
- > Double or triple primary ratio
- > Voltage transformer
- > Summation CTs

### Function

SOCOMECC current transformers deliver to the secondary a standard current proportional to the primary current and adapted to the rating of the associated device. They are equipped as standard with removable terminal covers and double terminals allowing the secondary to be short-circuited without any risk.

They are mounted using two screw-on metal brackets or, in certain cases, by a clip-on DIN-rail fastener. The connections are made by screws or by fast-on terminals.

- Accuracy class: 0.2s — 0.5 or 1.
- Dielectric quality: 3 kV — 50 Hz — 1 min.
- Operating frequency: 50 — 60 Hz.
- Permanent overload: 1.2 In.
- Insulation class: E (120 °C).

### Advantages

#### An adapted accuracy class

In order to get the best of your DIRIS multifunction meters and COUNTIS energy meters, we can provide current transformers with the following accuracy classes: 0.2s; 0.5; 1 or 3.

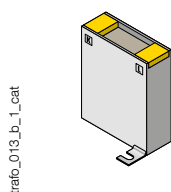
#### A wide range of ratings and dimensions

Your measurement process can be optimised whatever your needs in terms of ratings, space requirements, conductor sizing or accuracy class. A wide range of combinations are available in our standard range with specific versions available on request (other ratios, tropicalisation and specific frequency, class or burden).

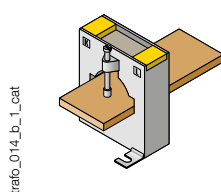
#### Quick and easy to mount

Our current transformers are adapted to any type of mounting: edgewise or flat mounting, DIN-rail or back-plate mounting. Implementation is easy and rapid.

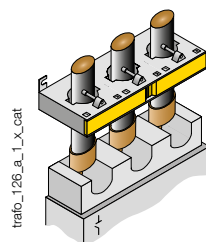
### Composition of the range



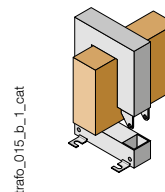
Primary wound moulded case CT



Bar or cable-through CT



Bar or cable-through three-phase CT



Bar-through split-core CT

## Primary wound moulded case CT

### References

Primary	Secondary <sup>(1)</sup>	TRB 60		TRB 70		T2RB 115		TRB 135	
		Class 0.5	Reference	Class 0.5	Reference	Class 0.2s	Reference	Class 0.5	Reference
5 A	5 A	2.5 VA	192T 0505	10 VA	192T 0521				
10 A	5 A	2.5 VA	192T 0510	10 VA	192T 0522				
15 A	5 A	2.5 VA	192T 0515	10 VA	192T 0523				
20 A	5 A	2.5 VA	192T 0520	10 VA	192T 0524				
25 A	5 A			10 VA	192T 0525	7.5 VA	192U 0402	10 VA	192T 0603
30 A	5 A			5 VA	192T 0530	7.5 VA	192U 0403	10 VA	192T 0607
40 A	5 A			5 VA	192T 0541	7.5 VA	192U 0404	10 VA	192T 0604
50 A	5 A			5 VA	192T 0551	7.5 VA	192U 0405	10 VA	192T 0605
60 A	5 A					7.5 VA	192U 0406	10 VA	192T 0606
75 A	5 A					7.5 VA	192U 0407	10 VA	192T 0608
80 A	5 A					7.5 VA	192U 0408	10 VA	192T 0609
100 A	5 A							10 VA	192T 0610
125 A	5 A					7.5 VA	192U 0412	10 VA	192T 0612
150 A	5 A					7.5 VA	192U 0415	10 VA	192T 0615

(1) Secondary 1 A: on request.

### Accessories

Description of accessories	TRB 60 Reference	TRB 70 Reference		TRB 135 Reference
DIN-rail mounting	192T 0003	192T 0005 <sup>(1)</sup>		
Sealable cover	192T 0105	192T 0103		192T 0101 <sup>(2)</sup>

(1) Not available for 50 A rating

(2) For 125 and 150 A ratings, use reference 192T 0103.

#### CT Plug-in transducer (CEA-VA)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y 0015	192Y 0025 <sup>(1)</sup>
230 VAC	0-20 mA / 0-10 VDC	192Y 0215	192Y 0225 <sup>(1)</sup>
24 VDC	0-20 mA / 0-10 VDC	192Y 0115	192Y 0125 <sup>(1)</sup>

(1) Not available for ratings 40 and 50 A

#### CT Plug-in transducer (CEA-VA4)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
230 VAC	4-20 mA / 0-10 VDC	192T 0255	192Y 0265 <sup>(1)</sup>
24 VDC	4-20 mA / 0-10 VDC	192Y 0155	192Y 0165 <sup>(1)</sup>

(1) Not available for ratings 40 and 50 A

### Certificate of performance

Each class 0.2s current transformer is supplied with an individual certificate of performance, attesting to its accuracy.

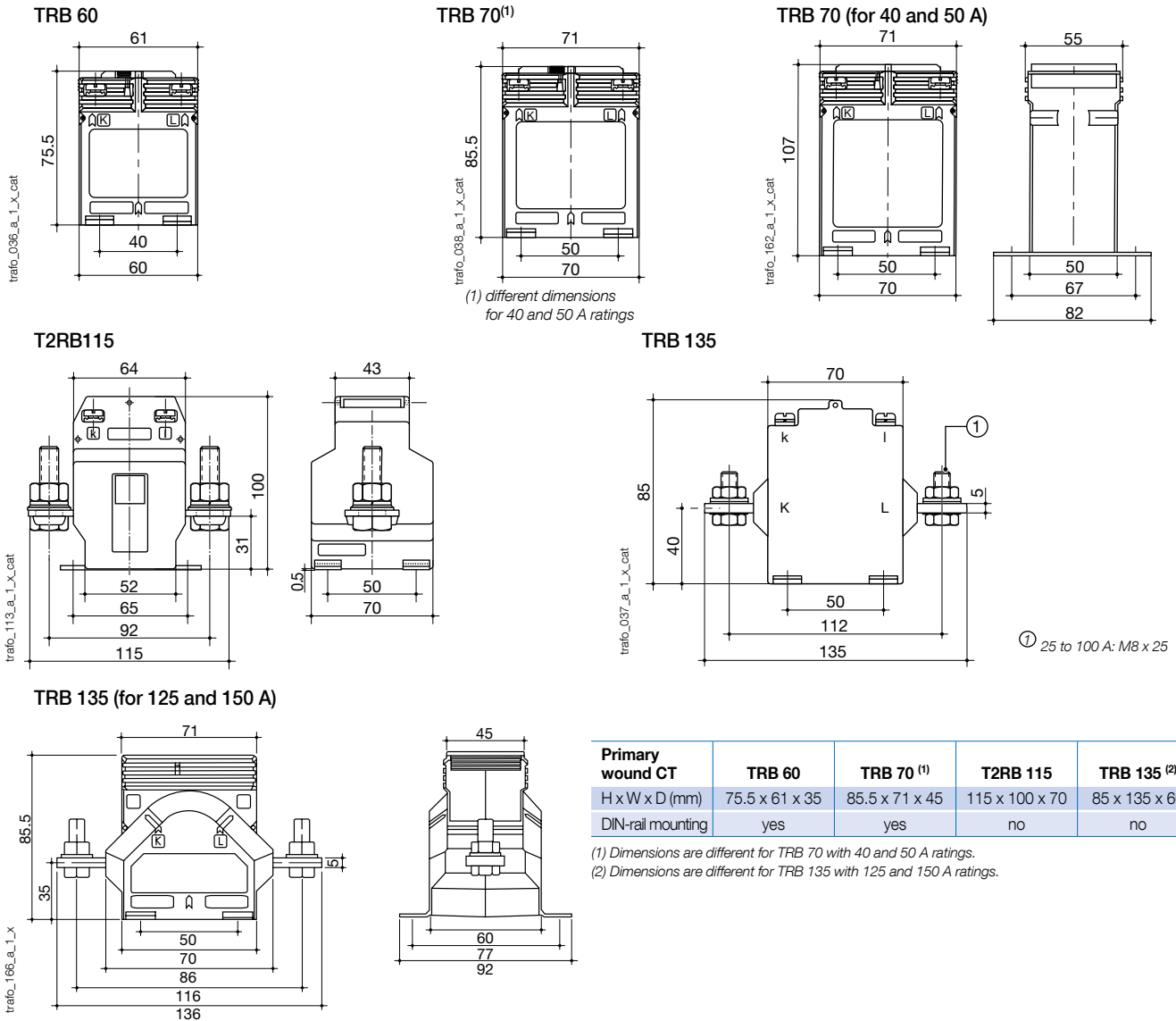
# Current transformers

## Measurement devices

from 5 to 5000 A

### Primary wound moulded case CT (continued)

#### Dimensions



Primary wound CT	TRB 60	TRB 70 <sup>(1)</sup>	T2RB 115	TRB 135 <sup>(2)</sup>
H x W x D (mm)	75.5 x 61 x 35	85.5 x 71 x 45	115 x 100 x 70	85 x 135 x 60
DIN-rail mounting	yes	yes	no	no

*(1) Dimensions are different for TRB 70 with 40 and 50 A ratings.*

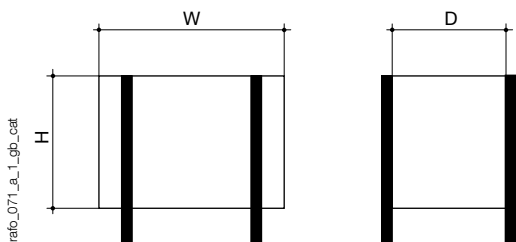
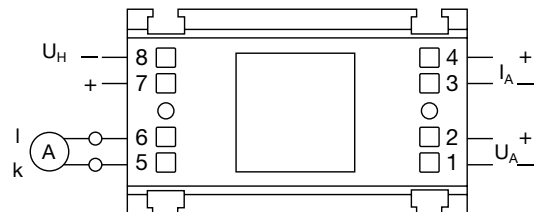
*(2) Dimensions are different for TRB 135 with 125 and 150 A ratings.*

#### Associated transducers



Transducer to be associated with adapted current transformers:

- Class 0.5.
- Input: 1 or 5 A.
- Output:
  - 0-20 mA, 0-10 V (type CEA-VA)
  - 4-20 mA, 0-10 V (type CEA-VA4)
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.



#### Dimensions (mm)

Converter	For CT	Height (mm)	Width (mm)	Depth (mm)
Type 1	TRB 60	50.5	60	32.5
Type 2	TRB 70	50	70	43

## Cable-through CT

### References

Primary	Secondary <sup>(1)</sup>	TCA 14		TCA 21		TCA 22		T2CA 225		
		Class 1	Reference	Class 1	Class 0.5	Reference	Class 1	Reference	Class 0.2s	Reference
40 A	5 A	1	192T 1404							
50 A	5 A	1	192T 1405							
60 A	5 A	1.5	192T 1406	1 VA		192T 2006				
75 A	5 A	1.5	192T 1407	1.5 VA		192T 2007				
80 A	5 A			1.5 VA		192T 2008				
100 A	5 A	2.5	192T 1410		1.5 VA	192T 2010	1 VA	192T 2022		
125 A	5 A	2.5	192T 1412		1.5 VA	192T 2012				
150 A	5 A	2.5	192T 1415		1.5 VA	192T 2015	1.5 VA	192T 2023	1.5 VA	192U 2215
200 A	5 A				2.5 VA	192T 2020	2.5 VA	192T 2024	2.5 VA	192U 2220
250 A	5 A				2.5 VA	192T 2016	3.75 VA	192T 2025	5 VA	192U 2225
300 A	5 A				2.5 VA	192T 2017	3.75 VA	192T 2030	5 VA	192U 2230
400 A	5 A						5 VA	192T 2034	5 VA	192U 2240
500 A	5 A						5 VA	192T 2035 (2)	10 VA	192U 2250
600 A	5 A						5 VA	192T 2036 (2)	10 VA	192U 2260

(1) Secondary 1 A: on request.

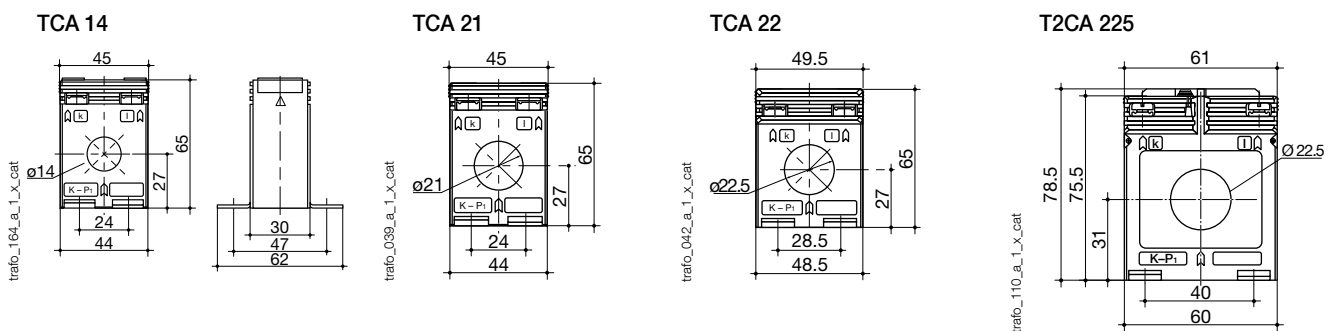
(2) Dimensions of T2CA 225

### Accessories

Description of accessories	TCA 14 Reference	TCA 21 Reference	TCA 22 Reference	T2CA 225 Reference
DIN-rail mounting	192T 0006	192T 0006	192T 0007	192T 0003
Guide tube Ø 8.5 mm <sup>(1)</sup>		192T 0020		
Guide tube Ø 12.5 mm <sup>(1)</sup>		192T 0021	192T 0023	
Guide tube Ø 16.5 mm <sup>(1)</sup>			192T 0024	
Sealable cover				192T 0105

(1) For centralising cables within the CT aperture.

### Dimensions



Cable-through CT	TCA 14	TCA 21	TCA 22 <sup>(1)</sup>	T2CA 225
Ø cable (mm)	14	21	22.5	22.5
H x W x D (mm)	65 x 45 x 30	65 x 45 x 30	65 x 49.5 x 35	78.5 x 61 x 35
DIN-rail mounting	yes	yes	yes	yes

(1) Dimensions are different for 600 A: 78.5x61x35.



# Current transformers

## Measurement devices

from 5 to 5000 A

### Bar or cable-through CT

#### References

Primary	Secondary <sup>(1)</sup>	TCB 17-20		TCB 26-30		T2CB 26-30		TCB 28-30			
		Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.2s	Reference	Class 0.5	Class 1	Reference
50 A	5 A				1 VA	192T 2305					
60 A	5 A	1 VA	192T 2106		1 VA	192T 2306					
75 A	5 A	1 VA	192T 2107		1.5 VA	192T 2307					
80 A	5 A	1.25 VA	192T 2108		1.5 VA	192T 2308				1.25 VA	192T 2408
100 A	5 A	1.5 VA	192T 2110	1.5 VA		192T 2310				1.5 VA	192T 2410
125 A	5 A	1.5 VA	192T 2112	1.5 VA		192T 2312				2.5 VA	192T 2412
150 A	5 A	2.5 VA	192T 2115	1.5 VA		192T 2315	1.5 VA	192U 2315		2.5 VA	192T 2415
160 A	5 A	2.5 VA	192T 2116								
200 A	5 A	2.5 VA	192T 2120	2.5 VA		192T 2320	2.5 VA	192U 2320	2.5 VA		192T 2420
250 A	5 A	5 VA	192T 2125	5 VA		192T 2325	2.5 VA	192U 2325	2.5 VA		192T 2425
300 A	5 A	5 VA	192T 2130	5 VA		192T 2330	5 VA	192U 2330	2.5 VA		192T 2430
400 A	5 A	5 VA	192T 2140	5 VA		192T 2340	5 VA	192U 2340	5 VA		192T 2440
500 A	5 A			5 VA		192T 2350	5 VA	192U 2350	5 VA		192T 2450
600 A	5 A			5 VA		192T 2360	5 VA	192U 2360			
750 A	5 A			5 VA		192T 2375	5 VA	192U 2375			

(1) Secondary 1 A: on request.

Primary	Secondary <sup>(1)</sup>	TCB 26-40		TCB 32-40		T2CB 32-40		
		Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.2s	Reference
75 A	5 A				1.5 VA	192T 4007		
100 A	5 A	1.5 VA	192T 3210	1.5 VA		192T 4010		
125 A	5 A	2.5 VA	192T 3212	1.5 VA		192T 4012		
150 A	5 A	2.5 VA	192T 3215	2.5 VA		192T 4015		
160 A	5 A	2.5 VA	192T 3216					
200 A	5 A	2.5 VA	192T 3220	5 VA		192T 4020	2.5 VA	192U 4020
250 A	5 A	2.5 VA	192T 3225	5 VA		192T 4025	5 VA	192U 4025
300 A	5 A	5 VA	192T 3230	10 VA		192T 4030	5 VA	192U 4030
400 A	5 A	5 VA	192T 3240	10 VA		192T 4040	5 VA	192U 4040
500 A	5 A	5 VA	192T 3250	10 VA		192T 4050	5 VA	192U 4050
600 A	5 A	5 VA	192T 3260	10 VA		192T 4060	5 VA	192U 4060
750 A	5 A	10 VA	192T 3275	10 VA		192T 4075	5 VA	192U 4075
800 A	5 A			10 VA		192T 4080		
1000 A	5 A			10 VA		192T 4090		

(1) Secondary 1 A: on request.

#### Accessories

Description of accessories	TCB 17-20 Reference	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
DIN-rail mounting	192T 0007	192T 0003	192T 0003	192T 0005
Sealable cover		192T 0105	192T 0105	192T 0103

#### CT Plug-in transducer (CEA-VA)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y 0015	192Y 0015	192Y 0035
230 VAC	0-20 mA / 0-10 VDC	192Y 0215	192Y 0215	192Y 0235
24 VDC	0-20 mA / 0-10 VDC	192Y 0115	192Y 0115	192Y 0135

#### CT Plug-in transducer (CEA-VA4)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
230 VAC	4-20 mA / 0-10 VDC	192T 0255	192T 0255	192Y 0275
24 VDC	4-20 mA / 0-10 VDC	192Y 0155	192Y 0155	192Y 0175

## References

Primary	Secondary <sup>(1)</sup>	TCB 44-50		TCB 44-63		T2CB 44-63	
		Class 0.5	Reference	Class 0.5	Reference	Class 0.2s	Reference
150 A	5 A	1.5 VA	192T 5015				
200 A	5 A	2.5 VA	192T 5020	1.5 VA	192T 6420		
250 A	5 A	5 VA	192T 5025	1.5 VA	192T 6425		
300 A	5 A	5 VA	192T 5030	2.5 VA	192T 6430	5 VA	192U 6430
400 A	5 A	10 VA	192T 5040	5 VA	192T 6440	5 VA	192U 6440
500 A	5 A	10 VA	192T 5050	10 VA	192T 6450	10 VA	192U 6450
600 A	5 A	10 VA	192T 5060	10 VA	192T 6460	10 VA	192U 6460
750 A	5 A	10 VA	192T 5075	10 VA	192T 6475	10 VA	192U 6475
800 A	5 A	15 VA	192T 5080	10 VA	192T 6480		
1000 A	5 A	15 VA	192T 5090	15 VA	192T 6490	10 VA	192U 6490
1200 A	5 A	15 VA	192T 5092	15 VA	192T 6492	10 VA	192U 6492
1250 A	5 A	15 VA	192T 5095	15 VA	192T 6493	10 VA	192U 6493
1500 A	5 A			15 VA	192T 6495	10 VA	192U 6495
1600 A	5 A			15 VA	192T 6494		

(1) Secondary 1 A: on request.

Primary	Secondary <sup>(1)</sup>	TCB 55-80		TCB 85-100		TCB 100-125	
		Class 0.5	Reference	Class 0.5	Reference	Class 0.5	Reference
400 A	5 A	2.5 VA	192T 8140				
500 A	5 A	5 VA	192T 8150				
600 A	5 A	5 VA	192T 8160				
750 A	5 A	10 VA	192T 8175	2.5 VA	192T 9675		
800 A	5 A	10 VA	192T 8180	5 VA	192T 9680		
1000 A	5 A	15 VA	192T 8190	10 VA	192T 9690	5 VA	192T 9590
1200 A	5 A	15 VA	192T 8192	10 VA	192T 9692	10 VA	192T 9592
1250 A	5 A	15 VA	192T 8193	15 VA	192T 9693	10 VA	192T 9593
1500 A	5 A	15 VA	192T 8195	15 VA	192T 9695	15 VA	192T 9595
1600 A	5 A	15 VA	192T 8194	15 VA	192T 9694		
2000 A	5 A	15 VA	192T 8196	30 VA	192T 9696	30 VA	192T 9596
2500 A	5 A			30 VA	192T 9697	30 VA	192T 9597
3000 A	5 A			30 VA	192T 9698	30 VA	192T 9598

(1) Secondary 1 A: on request.

## Accessories

Description of accessories	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference	TCB 85-100 Reference	TCB 100-125 Reference
Sealable cover	192T 0102	192T 0102	192T 0102	192T 0106	192T 0106

### CT Plug-in transducer (CEA-VA)

Power supply	Output	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference
Self-supplied	0-20 mA / 0-10 VDC		192Y 0045	192Y 0045
230 VAC	0-20 mA / 0-10 VDC		192Y 0245	192Y 0245
24 VDC	0-20 mA / 0-10 VDC		192Y 0145	192Y 0145

### CT Plug-in transducer (CEA-VA4)

Input	Output	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference
230 VAC	4-20 mA / 0-10 VDC		192Y 0285	192Y 0285
24 VDC	4-20 mA / 0-10 VDC		192Y 0185	192Y 0185

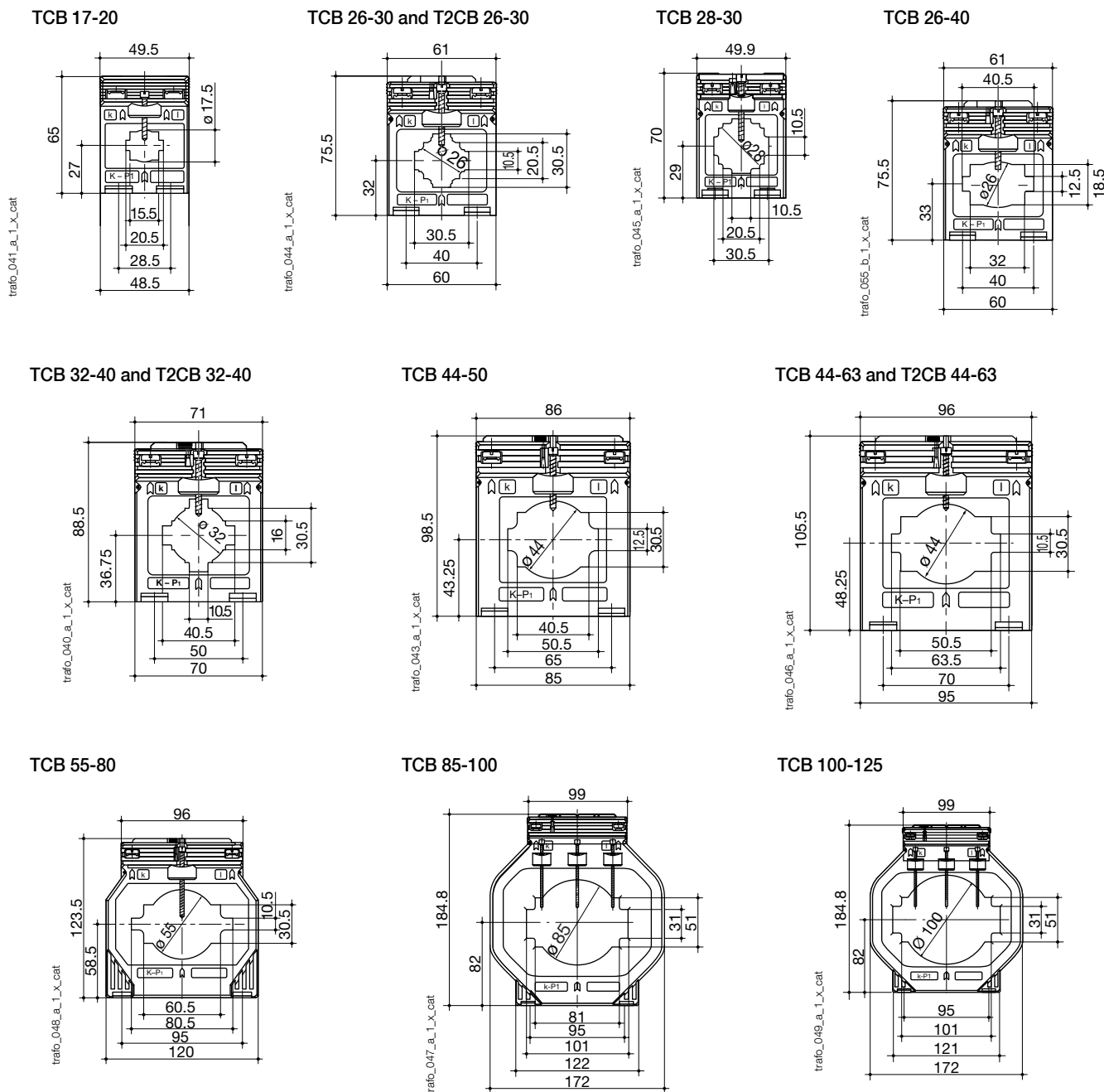
# Current transformers

## Measurement devices

from 5 to 5000 A

### Bar or cable-through CT (continued)

#### Dimensions



Bar or cable-through CT	TCB 17-20	TCB 26-30	T2CB 26-30	TCB 26-40	TCB 28-30	TCB 32-40	T2CB 32-40
Bar (mm)	20 x 5 (x 1)	30 x 10 (x 1) / 20 x 10 (x 1...2)	30 x 10 (x 1) / 20 x 10 (x 1...2)	40 x 12 (x 1) / 32 x 18 (x 1)	30 x 10 (x 1)	40 x 10 (x 1) / 30 x 5 (x 1...2)	40 x 10 (x 1) / 30 x 5 (x 1...2)
$\phi$ cable (mm)	17.5	26	26	26	28	32	32
H x W x D (mm)	65 x 49.5 x 50	75.5 x 61 x 48	75.5 x 61 x 48	75.5 x 61 x 48	70 x 49.9 x 68	88.5 x 71 x 58	88.5 x 71 x 58
DIN-rail mounting	yes	yes	yes	yes		yes	yes

Bar or cable-through CT	TCB 44-50	TCB 44-63	T2CB 44-63	TCB 55-80	TCB 85-100	TCB 100-125
Bar (mm)	50 x 12 (x 1) / 40 x 10 (x 1...2)	63 x 10 (x 1) / 50 x 10 (x 1...2)	63 x 10 (x 1) / 50 x 10 (x 1...2)	80 x 10 (x 1) / 60 x 30 (x 1) / 60 x 10 (x 1...2)	100 x 10 (x 1...2) / 80 x 10 (x 1...3)	123 x 30 (x 1) / 100 x 10 (x 1...3)
$\phi$ cable (mm)	44	44	44	55	85	100
H x W x D (mm)	98.5 x 86 x 58	105.5 x 96 x 58	105.5 x 96 x 58	123.5 x 120 x 58	184.5 x 172 x 52	184.5 x 172 x 52

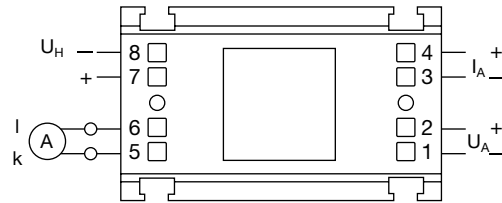
#### Associated transducers



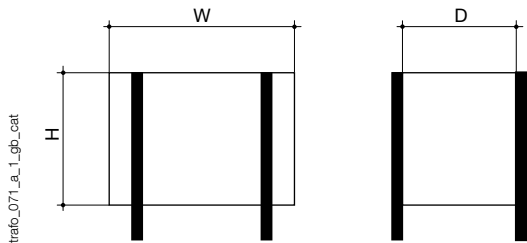
trafo\_074\_a\_1\_cat

Transducer to be associated with adapted current transformers:

- Class 0.5.
- Input: 1 or 5 A
- Output:
  - 0-20 mA, 0-10 V (model CEA-VA),
  - 4-20 mA, 0-10 V (model CEA-VA4),
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.



trafo\_060\_a\_1\_x\_cat



trafo\_071\_a\_1\_gb\_cat

#### Dimensions (mm)

Converter	For CT	Height (mm)	Width (mm)	Depth (mm)
Type 1	TCB 26-30	50.5	60	32.5
Type 1	TCB 26-40	50.5	60	32.5
Type 2	TCB 32-40	50	70	43
Type 3	TCB 44-63	50.5	95	43
Type 3	TCB 55-80	50.5	95	43

# Current transformers

## Measurement devices

from 5 to 5000 A

## Bar-through CT

### References

Primary	Secondary	TBA 60			TBA 80		TBA 100		T2BA 100	
		Class 0.5	Class 1	Reference	Class 0.5	Reference	Class 0.5	Reference	Class 0.2s	Reference
200 A	5 A		2.5 VA	192T 7020						
250 A	5 A	2.5 VA		192T 7025						
300 A	5 A	2.5 VA		192T 7030	2.5 VA	192T 7530				
400 A	5 A	5 VA		192T 7040	5 VA	192T 7540				
500 A	5 A	5 VA		192T 7050	5 VA	192T 7550				
600 A	5 A	10 VA		192T 7060	5 VA	192T 7560	5 VA	192T 8060		
750 A	5 A	10 VA		192T 7075	5 VA	192T 7575	5 VA	192T 8075		
800 A	5 A	10 VA		192T 7080	10 VA	192T 7580	5 VA	192T 8080		
1000 A	5 A	15 VA		192T 7090	15 VA	192T 7590	5 VA	192T 8090		
1200 A	5 A	15 VA		192T 7092	15 VA	192T 7592	10 VA	192T 8092	5 VA	192U 8092
1250 A	5 A	15 VA		192T 7093	15 VA	192T 7593	10 VA	192T 8093	5 VA	192U 8093
1500 A	5 A	15 VA		192T 7095	15 VA	192T 7595	15 VA	192T 8095	5 VA	192U 8095
1600 A	5 A	15 VA		192T 7094	15 VA	192T 7594	15 VA	192T 8094		
2000 A	5 A				15 VA	192T 7596	15 VA	192T 8096	5 VA	192U 8096
2500 A	5 A						30 VA	192T 8097	10 VA	192U 8097
3000 A	5 A						30 VA	192T 8098 (1)	10 VA	192U 8098
4000 A	5 A						30 VA	192T 8099 (1)		

(1) Dimensions are different for TBA 100 with 3000 and 4000 A primary.

Primary	Secondary	TBA 103		T2BA 103		TBA 127		T2BA 127	
		Class 0.5	Reference	Class 0.2s	Reference	Class 0.5	Reference	Class 0.2s	Reference
400 A	5 A	2.5 VA	192T 9340			2.5 VA	192T 9740		
500 A	5 A	2.5 VA	192T 9350			2.5 VA	192T 9750		
600 A	5 A	2.5 VA	192T 9360			2.5 VA	192T 9760		
750 A	5 A	2.5 VA	192T 9375			2.5 VA	192T 9775		
800 A	5 A	5 VA	192T 9380			5 VA	192T 9780		
1000 A	5 A	10 VA	192T 9390	5 VA	192U 9390	10 VA	192T 9790		
1200 A	5 A	10 VA	192T 9392	5 VA	192U 9392	10 VA	192T 9792	5 VA	192U 9792
1250 A	5 A	10 VA	192T 9393	5 VA	192U 9393	10 VA	192T 9793	5 VA	192U 9793
1500 A	5 A	15 VA	192T 9395	5 VA	192U 9395	15 VA	192T 9795	5 VA	192U 9795
1600 A	5 A	10 VA	192T 9394			15 VA	192T 9794		
2000 A	5 A	15 VA	192T 9396			15 VA	192T 9796	5 VA	192U 9796
2500 A	5 A					15 VA	192T 9797		
3000 A	5 A					25 VA	182T 9798 (1)		
4000 A	5 A					30 VA	182T 9799 (1)		

(1) Replacement model TRA 127 for this rating.

### Accessories

Description of accessories	TBA 60 Reference	TBA 80 Reference	TBA 100 Reference	T2BA 100 Reference	TBA 103 Reference	T2BA 103 Reference	TBA 127 Reference	T2BA 127 Reference
Sealable cover	192T 0102		192T 0102	192T 0102			192T 0102	192T 0102

#### CT Plug-in transducer (CEA-VA)

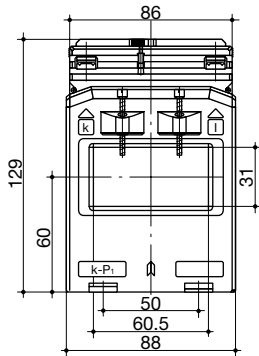
Power supply	Output	TBA 100 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y 0045
230 VAC	0-20 mA / 0-10 VDC	192Y 0245
24 VDC	0-20 mA / 0-10 VDC	192Y 0145

#### CT Plug-in transducer (CEA-VA4)

Power supply	Output	TBA 100 Reference
230 VAC	4-20 mA / 0-10 VDC	192Y 0285
24 VDC	4-20 mA / 0-10 VDC	192Y 0185

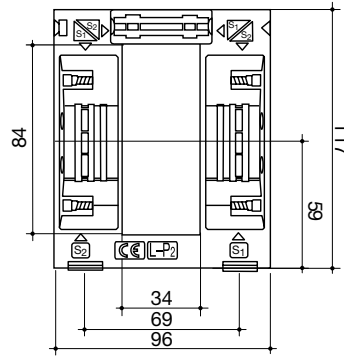
## Dimensions

**TBA 60**



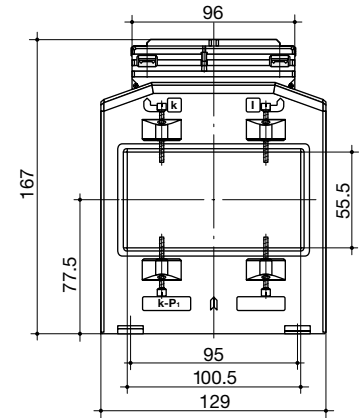
trafo\_050\_a\_1\_x\_cat

**TBA 80**  
300 to 2000 A



trafo\_059\_a\_1\_x\_cat

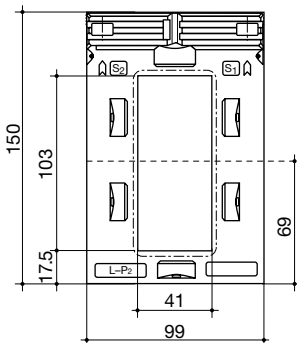
**TBA 100** 600 to 2500 A<sup>(1)</sup>  
**T2BA 100** 1200 to 3000 A



trafo\_082\_a\_1\_x\_cat

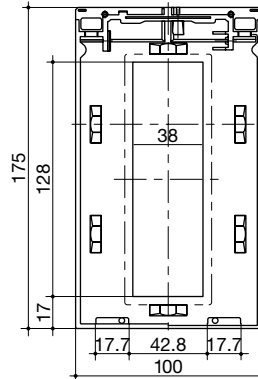
(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

**TBA 103 and T2BA 103**



trafo\_054\_a\_1\_x\_cat

**TBA 127 and T2BA 127**



trafo\_052\_a\_1\_x\_cat

Bar-through CT	TBA 60	TBA 80	TBA 100	T2BA 100	TBA 103	T2BA 103	TBA 127	T2BA 127
Bar (mm)	60 x 30	84 x 34	100 x 55	100 x 55	103 x 41	103 x 41	128 x 38	128 x 38
H x W x D (mm)	129 x 88 x 78	117 x 96 x 68	167 x 129 x 78 <sup>(1)</sup>	167 x 129 x 78	150 x 99 x 58	150 x 99 x 58	175 x 100 x 55	175 x 100 x 55

(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

# Current transformers

Measurement devices

from 5 to 5000 A

## Three-phase bar or cable-through CT

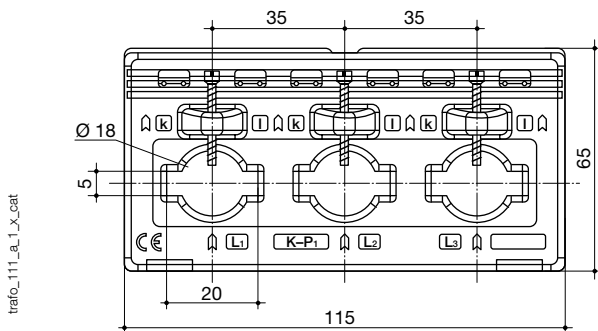
### References

Primary	Secondary <sup>(1)</sup>	TCB3 18-20		TCB3 22-30	
		Class 1	Reference	Class 1	Reference
3 x 100 A	3 x 5 A	1 VA	192T <b>3310</b>		
3 x 150 A	3 x 5 A	1.25 VA	192T <b>3315</b>		
3 x 200 A	3 x 5 A	1.5 VA	192T <b>3320</b>		
3 x 250 A	3 x 5 A	2.5 VA	192T <b>3325</b>	2.5 VA	192T <b>3425</b>
3 x 300 A	3 x 5 A			3.75 VA	192T <b>3430</b>
3 x 400 A	3 x 5 A			5 VA	192T <b>3440</b>
3 x 500 A	3 x 5 A			5 VA	192T <b>3450</b>
3 x 600 A	3 x 5 A			5 VA	192T <b>3460</b>

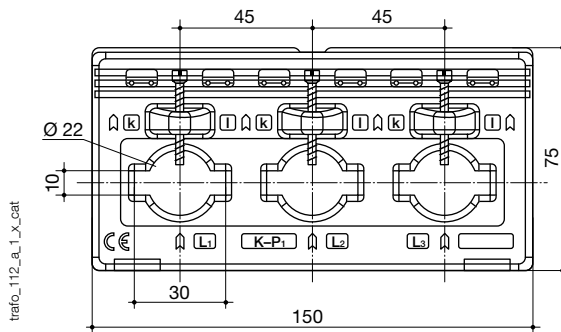
(1) Secondary 1 A: on request.

### Dimensions

TCB3 18-20



TCB3 22-30



Three-phase bar or cable-through CT	TCB3 18-20	TCB3 22-30
Ø cable (mm)	18	22
Bar-through	20 x 5	30 x 10
H x W x D (mm)	115 x 65 x 37	150 x 75 x 37
DIN-rail mounting	no	no



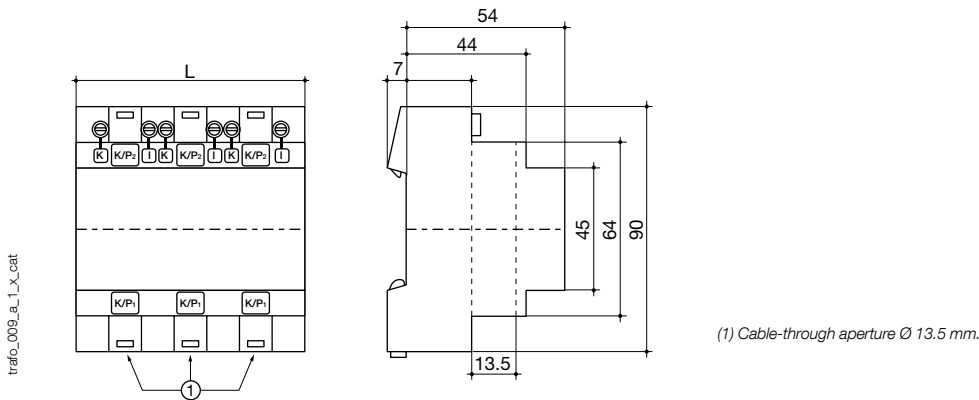
## References

Primary	Secondary <sup>(1)</sup>	TCA 13 – 3P	
		Class 1	Reference
3 x 50 A	5 A	1 VA	192T 1905
3 x 60 A	5 A	1.25 VA	192T 1906
3 x 75 A	5 A	1.5 VA	192T 1907
3 x 80 A	5 A	1.5 VA	192T 1908
3 x 100 A	5 A	2.5 VA	192T 1910
3 x 125 A	5 A	2.5 VA	192T 1912
3 x 150 A	5 A	2.5 VA	192T 1915
3 x 160 A	5 A	2.5 VA	192T 1916

(1) Secondary 1 A: on request.

## Dimensions

### TCA 13 – 3P



Number of modules	Front degree of protection	Terminal degree of protection	L (mm)	Mounting
6	IP65	IP20	105	35 mm DIN-rail

# Current transformers

Measurement devices

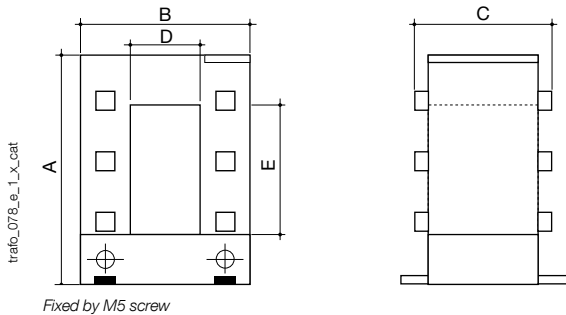
from 5 to 5000 A

## Split-core CT

### References

Primary	Secondary	TO 23			TO 58			TO 812			TO 816	
		Class 1	Class 3	Reference	Class 0.5	Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.5	Reference
100 A	5 A		1.25 VA	192T 4601								
150 A	5 A		1.5 VA	192T 4602								
200 A	5 A		2.5 VA	192T 4603								
250 A	5 A	1.5 VA		192T 4604		1.5 VA	192T 4625		1.5 VA	192T 4725		
300 A	5 A	3.75 VA		192T 4605		2.5 VA	192T 4630		2.5 VA	192T 4730		
400 A	5 A	5 VA		192T 4606	1 VA		192T 4640		2.5 VA	192T 4740		
500 A	5 A				2.5 VA		192T 4650	2.5 VA		192T 4750		
600 A	5 A				2.5 VA		192T 4660	2.5 VA		192T 4760		
750 A	5 A				2.5 VA		192T 4675	2.5 VA		192T 4775		
800 A	5 A				2.5 VA		192T 4680	2.5 VA		192T 4780		
1000 A	5 A				5 VA		192T 4610	5 VA		192T 4710	10 VA	192T 4810
1250 A	5 A							7.5 VA		192T 4712	10 VA	192T 4812
1500 A	5 A							7.5 VA		192T 4715	10 VA	192T 4815
1600 A	5 A										10 VA	192T 4814
2000 A	5 A										10 VA	192T 4820
2500 A	5 A										10 VA	192T 4825
3000 A	5 A										15 VA	192T 4830
4000 A	5 A										15 VA	192T 4840
5000 A	5 A										15 VA	192T 4850

### Dimensions



#### Dimensions (mm)

Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
TO 23	106	93	58	23	33
TO 58	158	125	58	55	85
TO 812	198	155	58	85	125
TO 816	243	195	79	85	165

Split-core CT	TO 23	TO 58	TO 812	TO 816
H x W x D (mm)	106 x 93 x 58	158 x 125 x 58	198 x 155 x 58	243 x 195 x 75

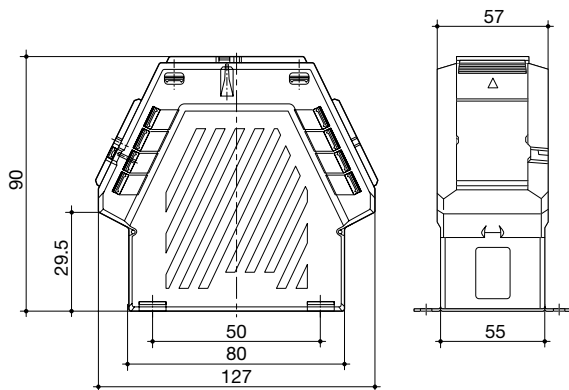
## Summation CT

### Reference

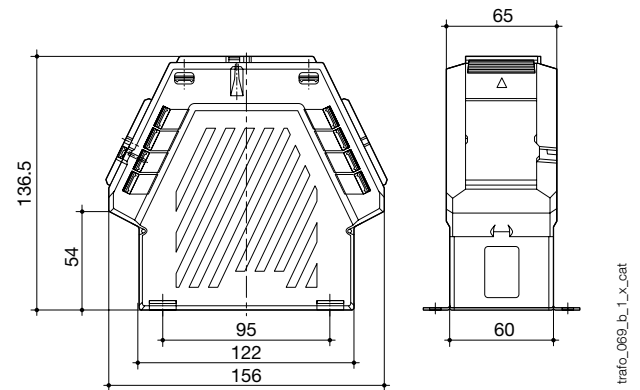
Primary	Secondary	BSA 02 Reference	BSA 03 Reference	BSA 04 Reference
5 + 5/5 A	5 A	192T 0802		
5A + 5+ 5/5	5 A		192T 0803	
5 + 5 + 5 + 5/5 A	5 A			192T 0904

### Dimensions

BSA 02 and BSA 03



BSA 04



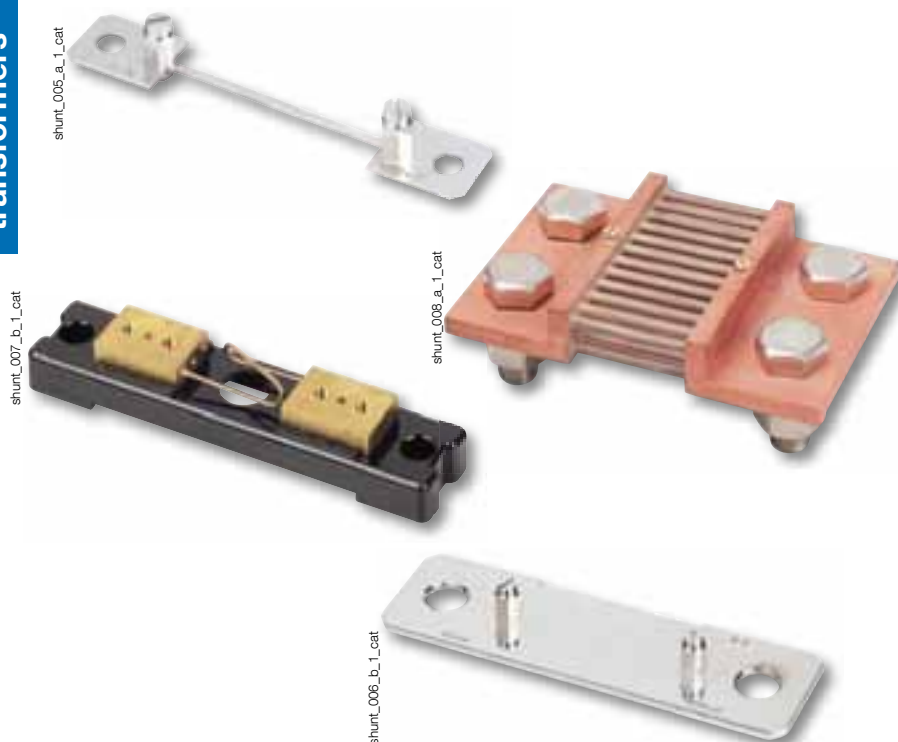
Summation CT	BSA 02	BSA 03	BSA 04
H x W x D (mm)	90 x 127 x 57	90 x 127 x 57	136.5 x 156 x 65
DIN-rail mounting	no	no	no



# Measurement shunts

## Measurement devices

Current  
transformers



### Composition of the range

- > 20 ratings available from 1 to 6000 A, with 100 mV output
- > Other ratings and secondary voltages are available. Please contact us

### Function

SOCOMEc shunts provide indirect measurement of direct current by creating a standardised voltage drop.

### Characteristics

- Voltage drop: 100 mV for nominal rating.
- Accuracy class: 0,5.
- Permanent overload: 1.2 In.
- 10 In / 5s rating  $\leq$  500 A  
5 In / 5s rating 600 to 1500 A  
2 In / 5s rating  $\geq$  2500 A.

### References

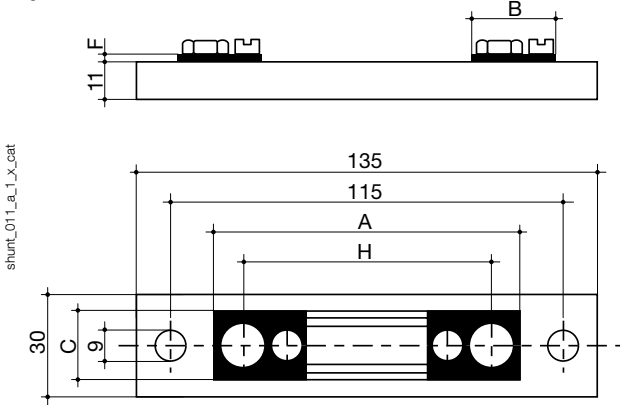
Rating (A) <sup>(1)</sup>	Secondary voltage drop	DIN series Reference
1 A	100 mV	192S 2101
4 A	100 mV	192S 2104
6 A	100 mV	192S 2106
10 A	100 mV	192S 2110
15 A	100 mV	192S 2112
25 A	100 mV	192S 2114
40 A	100 mV	192S 2116
60 A	100 mV	192S 2118
100 A	100 mV	192S 2120
150 A	100 mV	192S 2125
200 A	100 mV	192S 2220
250 A	100 mV	192S 2235
300 A	100 mV	192S 2230
400 A	100 mV	192S 2240
600 A	100 mV	192S 2250
1000 A	100 mV	192S 2255
1500 A	100 mV	192S 2260
2500 A	100 mV	192S 2165
4000 A	100 mV	192S 2170
6000 A	100 mV	192S 2175

(1) Other rating: please consult us.

Dimensions

DIN Series 1 to 25 A

Fig. 1

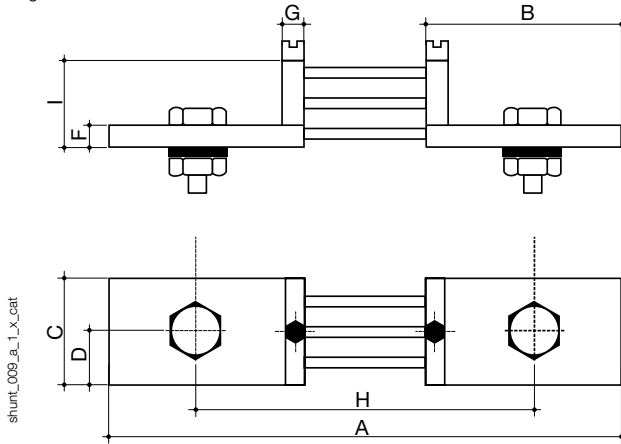


Rating (A) <sup>(1)</sup>	Figure	A	B	C	D	E	F	G	H	I
1	1	90	28	20			8		78	
4	1	90	28	20			8		78	
6	1	90	28	20			8		78	
10	1	90	28	20			8		78	
15	1	90	28	20			8		78	
25	1	90	28	20			8		78	
40	2	123	33	20			8		103	
60	2	123	33	20			8		103	
100	2	123	33	20			8		103	
150	2	123	33	20			8		103	
200	2	168	55	30	15		10	10	128	30
250	2	168	55	30	15		10	10	128	30
300	2	168	55	40	20		10	10	128	30
400	2	168	55	40	20		10	10	128	30
600	2	168	55	40	20		10	10	128	30
1000	2	188	65	60	30		10	10	138	30
1500	3	188	65	90	21	48	10	10	138	30
2500	3	188	65	120	30	60	10	10	138	30
4000	3	188	65	120	30	60	15	10	138	60
6000	3	188	65	180	30	60	15	10	138	60

(1) Connection: 2 M5 screws x 8 and 2 washers Ø 5.3 mm.

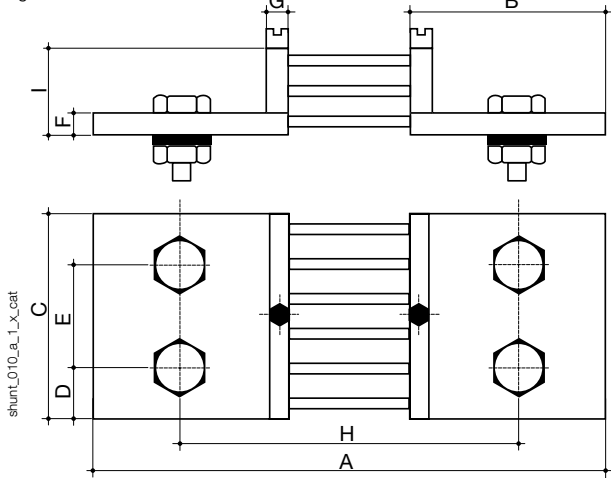
DIN Series 40 to 1000 A

Fig. 2



DIN Series 1500 to 6000 A

Fig. 3





# Other products

## Measurement devices

### PTI: CT automatic short-circuiter



#### Use

This device provides automatic short-circuiting of the CT: if the measuring circuit is opened.

#### Conformity to standards

- > NF C 15-100 articles 473.1.4-556.3
- > GAM EG 13.C (military standard)

#### Other regulations

- > Decree n° 88-1056 from 14-11-88: protection of workers
- > Complies with the Mines and Quarries decree n° 91-986

#### References

Rating (A)	Trigger voltages	Operating frequency	Max. differential voltage	Reference
5 A	21 VAC	45 ... 400 Hz	600 VAC	4990 0521
5 A	25 VAC	45 ... 400 Hz	600 VAC	4990 0525 <sup>(1)</sup>

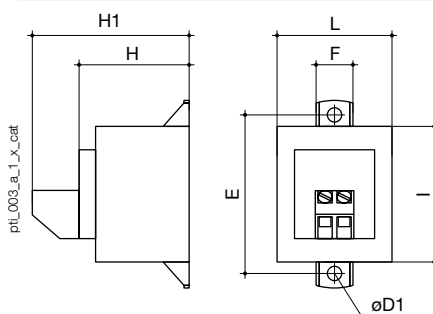
(1) DCN approved (French State Naval Construction Company).

#### Characteristics

Case degree of protection	IP55
Terminal protection degree	IP20
Connection cross-section	2.5 mm <sup>2</sup>
Weight	82 g

Rating (A)	D1	E	F	H	H1	I	L
5	4.2	47	9.6	32	44	41	34.7

#### Dimensions



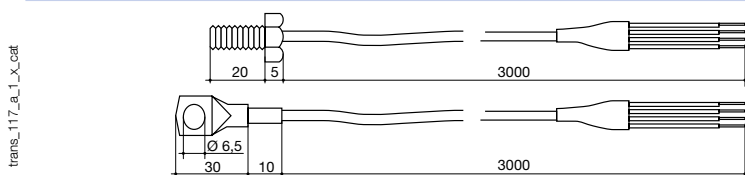
### Sensor PT100 - screw type

- Element sensitivity as per standard IEC 751 class A.
- 4 wire mounting.
- 3 meter length output of Teflon isolated cable.
- Tolerance class A:
  - Accuracy at -50 °C: ± 0.14 °C,
  - Accuracy at 0 °C: ± 0.13 °C,
  - Accuracy at +50 °C: ± 0.25 °C,
  - Accuracy at +100 °C: ± 0.26 °C,
  - Accuracy at +150 °C: ± 0.33 °C.

#### References

Products	Reference
Temperature sensor PT100 - M6 screw type	4825 0208
Temperature sensor PT100 - eyelet type	4825 0209

#### Dimensions



## Transformer with integrated converter (CTA-VA)

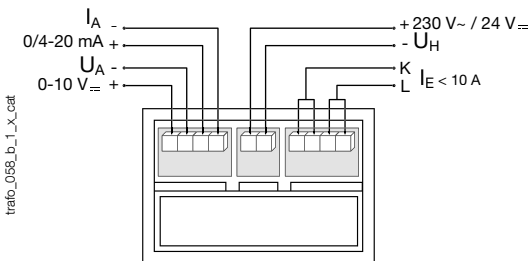


Compact measurement converter with cable-through transformer (Ø27 mm) or bar transformer (40 x 10 mm).

- Input:
  - Direct Connection 0 to 10 A,
  - CT primary of 40 to 800 A (self-supplied)
  - CT primary of 15 to 800 A (auxiliary supply)

- Output:
  - 0-20 mA, 0-10 V (type CTA-VA)
  - 4-20 mA and 0-10 V (type CTA-VA4).

- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- Dimension: 135 x 80 x 50 mm.



### References

Primary	0-20 mA / 0-10 VDC Self supplied	0-20 mA / 0-10 VDC 230 VAC	0-20 mA / 0-10 VDC 24 VDC	4-20 mA / 0-10 VDC 230 VAC	4-20 mA / 0-10 VDC 24 VDC
Reference	Reference	Reference	Reference	Reference	Reference
1 A	192Y 0401	192Y 0501	192Y 0801	192Y 0601	on request
5 A	192Y 0402	192Y 0502	192Y 0802	192Y 0602	192Y 0902
10 A		192Y 0503	192Y 0803	192Y 0603	on request
15 A		192Y 0504	192Y 0804	192Y 0604	192Y 0904
20 A		192Y 0505	on request	192Y 0605	192Y 0905
25 A		on request	on request	192Y 0606	192Y 0906
30 A		192Y 0507	192Y 0807	192Y 0607	192Y 0907
40 A	192Y 0408	192Y 0508	on request	192Y 0608	192Y 0908
50 A	192Y 0409	192Y 0509	192Y 0809	192Y 0609	192Y 0909
60 A	192Y 0410	192Y 0510	on request	192Y 0610	192Y 0910
75 A	192Y 0411	192Y 0511	192Y 0811	192Y 0611	192Y 0911
100 A	192Y 0412	192Y 0512	192Y 0812	192Y 0612	192Y 0912
150 A	192Y 0415	on request	192Y 0815	192Y 0615	on request
200 A	192Y 0420	192Y 0520	on request	192Y 0620	on request
250 A	192Y 0425	192Y 0525	192Y 0825	192Y 0625	192Y 0925
300 A	192Y 0430	192Y 0530	192Y 0830	192Y 0630	192Y 0930
400 A	192Y 0440	192Y 0540	192Y 0840	192Y 0640	192Y 0940
500 A	192Y 0450	192Y 0550	192Y 0850	192Y 0650	on request
600 A	192Y 0460	192Y 0560	on request	on request	192Y 0960
750 A	192Y 0475	on request	192Y 0875	192Y 0675	192Y 0975
800 A	192Y 0480	192Y 0580	192Y 0880	192Y 0680	192Y 0980

## Voltage transformer BTV 25



### Applications

Measurement and conversion of the input value read at the primary of a transformer in a directly proportional voltage signal.  
BTV 25 products are voltage transformers.

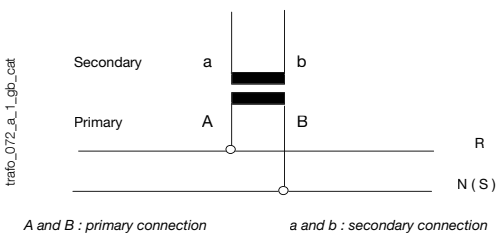
### Recommendation

Voltage transformers are used specifically for supplying measurement equipment, therefore it is not recommended to connect other components which could affect accuracy. This is due to the effect of the phase shift error. If the consumption is greater than 25 VA, another transformer must be added.

### Characteristics

Accuracy class	1 %
Dielectric quality	3 kV for 1 min.
Operating frequency	50 - 60 Hz
Permanent overload	1.2 $U_n$

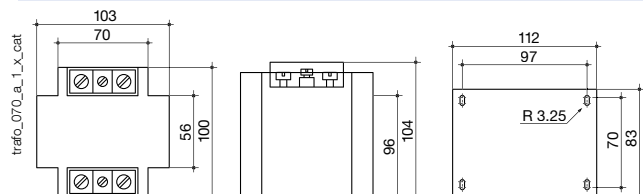
### Connection



### References

Primary	Secondary	Power	Reference
230 VAC	100 VAC	25 VA	192M 2020
400 VAC	100 VAC	25 VA	192M 2030
440 VAC	100 VAC	25 VA	192M 2044
500 VAC	100 VAC	25 VA	192M 2050
600 VAC	100 VAC	25 VA	192M 2060
660 VAC	100 VAC	25 VA	192M 2066
800 VAC	100 VAC	25 VA	Please consult us

### Dimensions







# Other electrical measurement devices

## Measurement devices

### Transducers



trans\_071\_a\_2\_cat

They provide conversion of an AC electrical value (A, V, Hz, Cos phi, W, Var) into a DC signal, with standardised current or voltage.

They are available in surface-mount casings (CS range).

These devices are designed for DIN rail or back plate mounting.

Type CS transducers are available in two sizes:

- 75 mm for current, voltage and frequency converters,
- 150 mm for power or three-phase converters.

Consult us.

### Modular transducers



trans\_076\_a\_2\_cat

Available in:

- 3-DIN module housings (52.5 mm) for current, voltage and frequency converters,
- 6-DIN module housings (105 mm) for current (output 4-20 mA), voltage (output 4-20 mA) converters,
- 9-DIN module housings (157.5 mm) for power or three-phase converters.

Consult us.

### Analogue meters



freq\_005\_a\_3\_cat

ampier\_027\_a\_1\_cat

freq\_002\_a\_1\_cat

ampier\_033\_a\_2\_cat

phase\_002\_b\_3\_cat

SOCOMEK ferromagnetic ammeters and voltmeters measure the AC current/voltage of any electrical circuit. SOCOMEC vibrating reed or needle type frequency meters have a converter either integrated or in a separate casing and measure the frequency of any electrical circuit.

The wattmeters, varmeters and phase-meters consist of an analogue meter and a separate converter. They are available in 3 types of casing: Rotex round barrel model in 72 or 96, in a DIN 48 to 144 body or a modular casing (3 modules).

With pointer deflections of 90° and 240°, they can be flush-mounted into cubicles, enclosures or other equipment.

Consult us.

## Selector switches



Voltmeter and ammeter switches that allow phase selection on a three-phase circuit for voltage and current measurement.

They are available in three different casings:

- for screw mounting,
- with a central  $\varnothing$  22 mm mounting,
- for DIN rail mounting.

Consult us.

## Digital meters



They measure all types of electrical values (A, V, Hz, Cos phi, P, Q...).

The range:

- 2 different types of casing: rectangular or square:
  - 2 sizes of rectangular casing,
  - 2 sizes of square casing.
- direct measurement or connection to a current or voltage transformer,
- 2000-point (3.5 digits) or 20000-point (4.5 digits) display,
- possibility of having 2 or 3 different types of measurement in the same square casing (AAA-VVV-AVF...),
- multi-indicator version,
- RMS-value.

Consult us.

## Hour counters



Often combined with analogue meters in an electrical panel, hour counters count the total operating time of machines or electrical equipment.

Consult us.



# DIRIS G

Wireless and cabled RS485 to Ethernet communication gateways

Communication  
interfaces



**DIRIS G-30**  
RS485 / Ethernet

**DIRIS G-40**  
RS485 - wireless / Ethernet



Configuration  
with EasyConfig,  
see page 156.

## Function

With communication gateways **DIRIS G** all the information from meters and power monitors, communicating by radio frequency or RS485, is centralized and made available on the Ethernet Modbus (TCP).

DIRIS G gateways can retrieve data from meters or Socomec remote measuring points via Ethernet.

The gateway has an embedded WEBVIEW web server, allowing real time monitoring of electrical values and analysis of consumption data. The user can be alerted of any alarms via email.

## Advantages

### WEBVIEW<sup>(1)</sup> embedded web server

DIRIS G gateways include an embedded web server. Two versions are available:

- Power Monitoring:
  - Realtime measurements and alerts.
- Power & Energy Monitoring:
  - Realtime measurements and alerts.
  - Trends for selected parameters and energy consumption history and analysis.

### Scalable

Several optional modules are available:

- Digital inputs/outputs.
- Analogue inputs/outputs.
- Temperature inputs.

(1) See page 152.

### Plug & Play

- Connected metering and measurement devices are automatically addressed and detected by the DIRIS G gateway. These integrate the following:
  - Automatic time synchronisation (SNTP) with battery recording
  - Synchronisation of connected devices
  - Warning messages in the event of an alert (e-mail SMTP)
  - Automatic recording and storage of measurements and consumption data
  - Automatic tariff changes (multi-tariff).
- Data exported automatically via FTP server.

## Selection guide

	Gateway	DIRIS G-30	DIRIS G-40	DIRIS G-50	DIRIS G-60
Communication	RS485 Modbus	•	•	•	•
	Radio frequency Communication (wireless)		•		•
	Ethernet	•	•	•	•
WEBVIEW embedded web server.	Power Monitoring	•	•	•	•
	Power & Energy Monitoring			•	•

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > WEBVIEW embedded web server
- > Scalable
- > Plug & Play

## Compliance with standards

- > IEC 61010



- > ISO 14025



- > UL



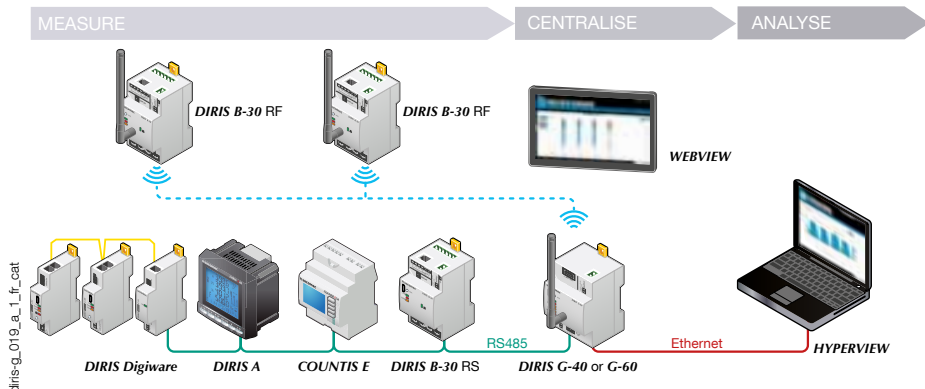
## Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



### Architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server



### Embedded web server

#### WEBVIEW<sup>(1)</sup> embedded web server

- Version Power Monitoring: embedded in DIRIS G-30 and G-40
- Version Power & Energy Monitoring: embedded in DIRIS G-50 and G-60
- 32 devices max (RS485 and wireless indifferently)



(1) For further details see page 152.

### DIRIS O optional modules

a maximum of 4 optional modules can be connected to a DIRIS G gateway in order to integrate controls/ commands.

DIRIS O-iod	2 digital inputs / 2 digital outputs
DIRIS O-ioa	2 analogue inputs / 2 analogue outputs
DIRIS O-it	3 temperature inputs
DIRIS O-m	Additional slave RS485 communication

For more information see "DIRIS O optional modules" page 77.



Optional module DIRIS B-30

### Accessories

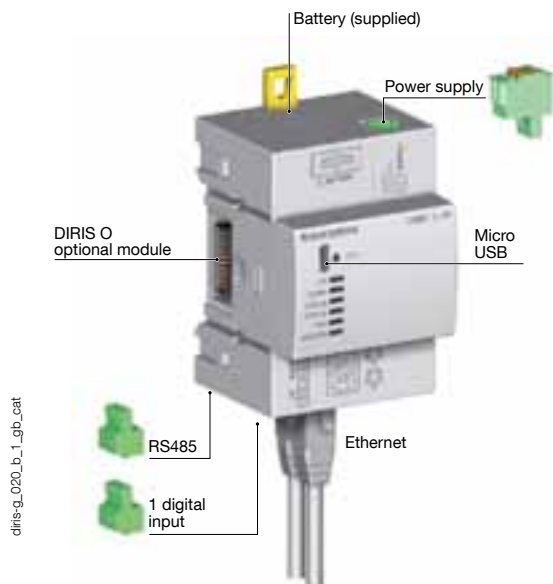
#### Remote radio antenna

- Allows the antenna to be mounted outside the enclosure to increase the transmission distance up to 300 m if there are no obstacles.

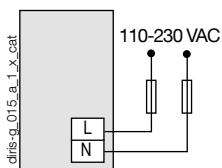
#### USB configuration cable

- Configuration of DIRIS G gateways can be achieved using EASY CONFIG software via Ethernet or direct USB connection.

### DIRIS G terminals

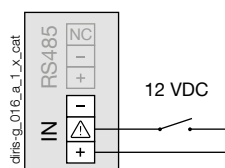


#### Power supply

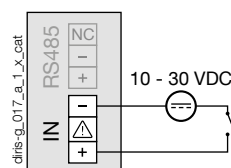


NC: not connected

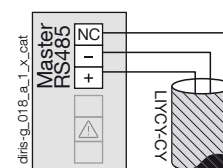
#### Input powered by the product



#### Input with external power supply



#### RS485

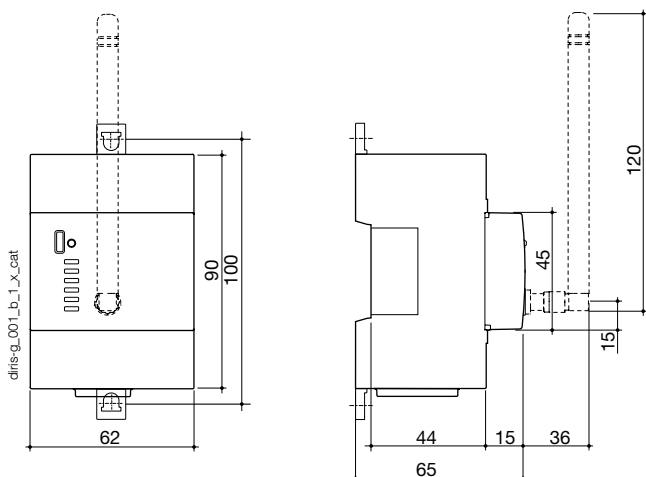


### Terminals of DIRIS O optional modules

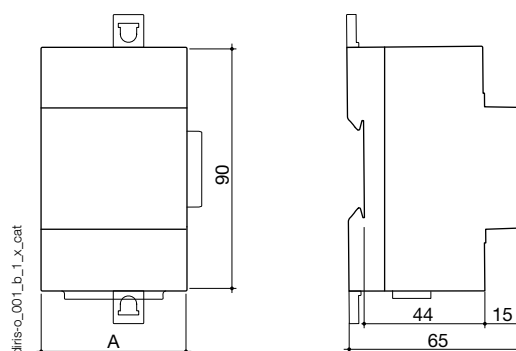
Optional modules are common to the DIRIS B-30 monitoring device.  
For a description of the terminals [vea la página 78.](#)

### Dimensions (mm)

#### DIRIS G-30 / G-40 / G-50 / G-60



#### DIRIS O optional modules



#### DIRIS O optional modules

DIRIS O-iod - DIRIS O-ica - DIRIS O-it - DIRIS O-m

A  
45 mm

## Specifications

Mechanical specifications	
Casing type	DIN-rail mounting module and base
Case degree of protection	IP20 / IK06
Front degree of protection	IP40 on the nose in modular assembly / IK08
Weight	DIRIS G-30, G-50 = 190 g DIRIS G-40, G-60 = 215 g
Electrical characteristics	
Power supply	
Alternative voltage	110-230 VAC $\pm$ 15% (Ph/N or Ph/Ph) Cat III
Frequency	50/60 Hz
Power consumption	6 VA
Battery	CR 1220 3 V lithium button cell battery
Input	
Number	1
Type / Power supply	Optocoupler internal polarisation (12 VDC $\pm$ 10%) or external (10-30 VDC $\pm$ 10%)
Input function	Logic status, pulse meter or synchronisation pulse status
Communication specifications	
DIRIS G	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Baudrate	2400 ... 115200 bauds
Function	Communication with PMDs and meters
DIRIS G-40 and DIRIS G-60	
Link	Radio-frequency (RF)
Frequency range	868 MHz (low frequency: 868.1 MHz and high: 869.5875 MHz)
Baudrate	38400 bauds
Function	Communication with DIRIS B-30 RF
Scope	300 m (open field)
Ethernet	
Link	Ethernet 10/100 base-T, 2 RJ45 bases with integrated switch
Protocol	Modbus TCP (port 502), Modbus RTU over TCP (port 503), HTTP, SMTP, SNTP, DHCP, FTP (G-50/G-60)
Clock	Internal
SNTP protocol	Gateway time updating from an NTP server. Connected PMDs time updating.
SMTP protocol	Sending of alarm emails from the gateway
Function	Configuration of the gateway, connected PMDs and meters Access to the WEBVIEW web server, data centralisation
USB	
Connection type	USB 2 (required installation of Easy Config)
Protocol	Modbus RTU on USB
Function	Configuration of the gateway, connected PMDs and meters
Connection	Type B micro USB connector
Memory characteristics	
Consumption history (memory extension for meters and measurement units)	1 year (1 hour period)
Electrical values	2 months (10 min period)
Number of events	Alarms 1000 Network quality according to EN 50160: 1000
Environmental specifications	
Ambient operating temperature	-10 ... +70°C
Storage temperature	-25 ... +85°C
Operating humidity	55°C / 97% HR

## References

DIRIS G gateways		Reference	
DIRIS G-30	RS485 / Ethernet - WEBVIEW Power Monitoring	4829 <b>0300</b>	
DIRIS G-40	RS485-RF / Ethernet - WEBVIEW Power Monitoring	4829 <b>0301</b>	
DIRIS G-50	RS485 / Ethernet - WEBVIEW Power & Energy Monitoring	4829 <b>0302</b>	
DIRIS G-60	RS485-RF / Ethernet - WEBVIEW Power & Energy Monitoring	4829 <b>0303</b>	
DIRIS O optional modules		Reference	
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 <b>0030</b>	
DIRIS O-ioa	2x 4-20 mA analogue inputs / 2x 4-20 mA analogue outputs	4829 <b>0031</b>	
DIRIS O-it	3 temperature inputs, PT100/PT1000	4829 <b>0032</b>	
DIRIS O-m	RS485 modbus slave communication	4829 <b>0033</b>	
Accessories		To be ordered in multiples of	Reference
Wireless remote antenna, 868 MHz - 210 mm height			4854 <b>0126</b>
Cable for remote antenna - SMA connector - 3 meter length			4854 <b>0127</b>
USB configuration cable			4829 <b>0050</b>
Fuse circuit breakers to protect the auxiliary power supply (type RM) 1 pole + neutral		6	5601 <b>0017</b>
gG 10x38 0.5 A fuses		10	6012 <b>0000</b>



# Datalogger

Communication  
interfaces

**new**



DATALOG H80



DATALOG H60

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Easy to install
- > Reliable collection and transmission
- > Advanced functions

## Expert Services

- > Study, definition, advice, commissioning, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.

## Function

DATALOG H60 and H80 dataloggers associated with Socomec wireless interfaces enable you to create a smart energy data communication network in order to:

- Remotely and automatically read multi-fluid energy meters and multi-function meters, isolated or not.
- Pool, secure, store and provide the data to a computer application.
- Connect your meters and multi-function measurement units in a 2G/3G/GPRS network.

## Advantages

### Easy to install

- Quick installation on DIN rail or door mounting.
- Compact.
- Remote configuration.
- Configuration services (SOCOMECE services).

### Reliable collection and transmission

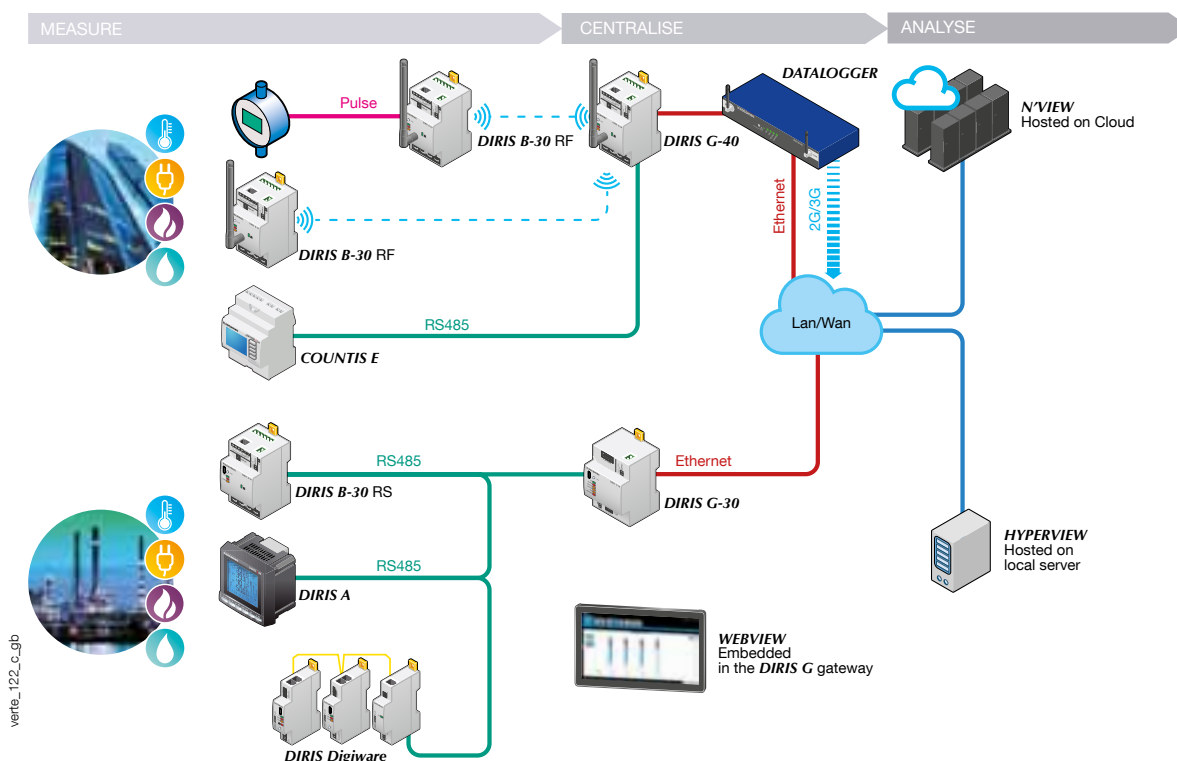
- Configurable collection frequency for each energy and multi-function meter.
- Secure, regular transmission (daily, weekly, etc.).
- Multiple communication protocols (Modbus RTU/TCP, Wireless M-Bus, HTTP(s), FTP(s)).
- Collection interfaces: Ethernet - RS232/485 or Wireless.
- Transmission interface: Ethernet or 2G/3G/GPRS.

### Advanced functions

- Extended data storage capacity (1 year for index data and 2 months for load curves).
- Auto-detects meters and measuring equipment.
- Sends regular activity reports.
- Event alerts (communication errors, data quality, remote server connection).



## The SOCOMEC communicating energy-efficiency solution



## Specifications

	DATALOG H60	DATALOG H80
<b>Input/output interfaces</b>		
Input	3 digital or pulse inputs	
Output	1 digital output (relay)	
<b>Serial interfaces</b>		
Input	1 port (Modbus)	
Output	1 port (Modbus or M-Bus)	
<b>Wireless interface</b>		
Wireless M-Bus	868.3 - 868.95 MHz	
<b>Network interface</b>		
Ethernet	1 10/100 Mb port	2 10/100/1000 Mb port
GSM/GPRS	850/900/1800/1900 MHz	850/900/1800/1900 MHz
3G	900/2100 MHz	900/2100 MHz
<b>Protocols</b>		
Data collection	Modbus RTU and TCP/Wireless Mbus	Ethernet/Modbus TCP:
Data transmission	FTP	FTP(s)/ HTTP(s)
<b>Configuration</b>		
Local	Yes	Yes
Distant	by text message	by FTP

## References

<b>Datalogger</b>	<b>Reference</b>
DATALOG H60 (power supply included)	4854 0001
DATALOG H80 (without 3G connection)	4854 0010
DATALOG H81 (with 3G connection)	4854 0011
<b>DATALOG H60 accessory description</b>	<b>Reference</b>
5 m remote antenna extension	4854 0105
10 m remote antenna extension	4854 0110
20 m remote antenna extension	4854 0120



# Wireless communication interfaces



## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

### Wireless M-Bus Modem

- > Battery life
- > Ease of installation
- > Long range
- > 2 pulse inputs
- > Transmitter
- > Repeater
- > Receiver

### ARF868 wireless modem

- > Sensitivity, transmission/reception quality
- > Ease of installation
- > Long range
- > Several types of communication

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.

## Function

### Wireless M-Bus Modem

**Wireless M-Bus AMR** (Automatic Meter Reading) plug-and-play modems automatically collect energy data from water and gas meters. They autonomously read data (index) from water and gas meters. 100% compatible with the Wireless M-Bus standard (EN13757-3 and EN13757-4), device open protocols ensure full interoperability with other Wireless M-Bus products on the market.

### ARF868 wireless modem

**ARF868 wireless modems** convert data from a serial link into a wireless frame to send to a similar device in the frequency range 863-870 MHz. The power and sensitivity allow the data to be transmitted over distances of up to 20 km.

## Advantages

### Wireless M-Bus Modem

#### Battery life

- Runs on battery for up to 12 years.

#### Ease of installation

- Factory pre-programmed.
- Quick installation.
- Robust IP65.

#### Long range

- Up to 1 km. Range can be increased by installing repeaters.

#### 2 pulse inputs

- A single transmitter can handle two meters.
- Compatible with all water and gas meters.

#### Transmitter

- Wireless transmission of metering data (consumption) every 10 minutes (10s or 12hrs optional).

#### Repeater

- Wireless M-Bus wireless relay of metering data (consumption).
- Multiple repeaters can be used to extend the range.

#### Receiver

- Wireless M-Bus metering data (consumption) wireless receiver.
- RS485, RS232 or USB serial port.
- Remote antenna.

### ARF868 wireless modem

#### Sensitivity, transmission/reception quality

- Power 25 mW or 500 mW at 868 MHz.
- Licence-free frequencies on European bands (863 - 870 MHz) or frequencies subject to license (410 - 470 MHz).

#### Ease of installation

- Quick installation.
- User-friendly and configuration with intuitive software.
- The product can be configured as a transmitter, receiver or repeater.

#### Long range

- 1 to 20 km.

#### Several types of communication

- RS485, RS232 or USB serial port.

## Accessories

- 1-, 3- and 5-metre remote antenna.
- Antenna mount & adaptor.
- Power supply unit + connector (required).
- TNC converter pack.
- Sub D9 connector.
- IP53 and IP67 ingress protection rating.

## Specifications

	<b>Modem ARF868 (transmitter/repeater/ receiver model)</b>	<b>Wireless M-Bus transmitter modem: Water/Gas</b>	<b>Wireless M-Bus transmitter modem: Temperature</b>	<b>Wireless M-Bus repeater modem</b>	<b>Wireless M-Bus receiver modem</b>
Scope	Up to 1/4/7/20 km according to model	Up to 1000 m	Up to 1000 m	Up to 1000 m	
Wireless frequencies	863-870 MHz	863-870 MHz	863-870 MHz	863-870 MHz	863-870 MHz
<b>Interfaces</b>					
Inputs	-	2 pulse inputs	2 temperature inputs: - 1 pre-equipped input - 1 free input	-	-
Communication	RS232 - RS485 - USB optional	-	-	-	RS232 - RS485 - USB
Alerts	-	Leak detection - Fraud detection - Battery spent	-	-	-
Storage capability	-	Index bufferisation (consumption history)	-	-	-
Compatibility	-	Sappel Izar, Itron Cyble, Itron Gallus 2000, Elster BK	-	-	-
<b>General characteristics</b>					
Dimensions W x H x D	135 x 75 x 35 mm	210 x 103.1 x 37.2 mm	210 x 103.1 x 37.2 mm	210 x 103.1 x 37.2 mm	210 x 103.1 x 37.2 mm
Operating temperature	-30 ... +70°C	-40 ... +85°C	-40 ... +85°C	-40 ... +85°C	-40 ... +85°C
Power supply	4.5 ... 36 V	3.6V Li-SOCl <sub>2</sub> battery. Battery life up to 12 years guaranteed	3.6V Li-SOCl <sub>2</sub> battery. Battery life up to 12 years guaranteed	3.6 V. Power supply block supplied, model with battery optional	4.5 ... 36 VDC
Protection degree	IP53, IP67 (optional)	IP65	IP53	IP65	IP65
Standards	EN300-220 V2010/EN301-489/EN 60950				

## References

### Wireless M-Bus modem

	<b>Reference</b>
Wireless M-Bus Modem - Water	4854 <b>0054</b>
Wireless M-Bus Modem - Gas	4854 <b>0055</b>
Wireless M-Bus Modem - Temperature	4854 <b>0056</b>
Wireless M-Bus receiver modem – RS232	4854 <b>0057</b>
Wireless M-Bus receiver modem – RS485	4854 <b>0058</b>
Wireless M-Bus receiver modem – USB	4854 <b>0059</b>
Wireless M-Bus repeater modem	4854 <b>0060</b>

### ARF868 wireless modem

	<b>Reference</b>
Modbus wireless modem, distance 20 km	4854 <b>0050</b>
Modbus wireless modem, distance 7 km	4854 <b>0051</b>
Modbus wireless modem, distance 4 km	4854 <b>0052</b>
Modbus wireless modem, distance 1 km	4854 <b>0053</b>
<b>List of accessories for ARF868 wireless modem</b>	
	<b>Reference</b>
Power supply (mandatory)	4854 <b>0202</b>
RS232/USB cable (mandatory to configure ARF868 wireless modems)	4854 <b>0400</b>
RS485 connector (mandatory for use with RS485)	4700 <b>9993</b>
0.5 dB remote antenna + 1 m extension	4854 <b>0121</b>
0.1 dB remote antenna + 3 m extension	4854 <b>0122</b>
1.5 dB remote antenna + 5 m extension	4854 <b>0123</b>
Wall bracket for remote antenna	4854 <b>0124</b>
IP53 protection	4854 <b>0300</b>
IP67 protection	4854 <b>0301</b>

# Communication accessories

## Connecting the RS485 link

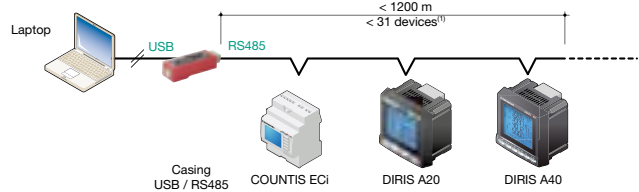
### USB / RS485 interface



inter\_002\_a\_2\_cat

#### Function

If the PC is not equipped with a serial port, this interface can be connected via a USB port to obtain an RS485 communication port. Recommended for local use and not for permanent installation.



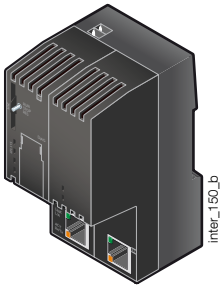
(1) Beyond these characteristics, use an "RS422 / RS485 repeater".

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#### References

Description of accessories	Reference
External USB / RS485 interface unit	4899 0110

## Modbus/Profinet communication gateway



inter\_150\_b

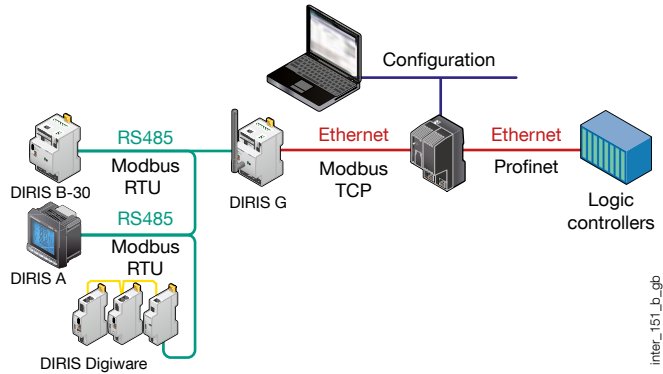
#### Function

The PROFINET communication gateway enables SOCOMEC communicating products in TCP modbus to be connected to a PROFINET network.

#### Advantages

Implementation, maintenance and diagnostic with a unique configuration software (Sycon.net), which is downloadable from SOCOMEC website.

- Several communication ports.
- IP20 DIN-rail mounting.
- Slot for MMC memory card.
- Configuration via USB port using a PC.
- Operation signalling Leds.
- Modbus data conversion up to 512 bytes data with Profinet (Modbus slave).

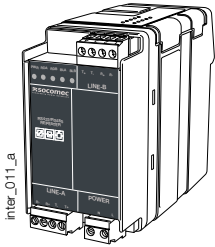


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Memory	8 MB SDRAM
	4 MB serial Flash
	MMC card (optional) 2 GByte max
Power supply	Voltage 24 V ± 6 V DC - reverse pole protected
	24 V current (typical) 130 mA
	3.2 W power consumption
	Mini-COMBICON, 2-pin connector
Configuration interface	USB
Operating temperature	0 ... + 60 °C
Dimensions W x H x D	100 x 70 x 52 mm (without connector)

Description of accessories	Reference
Profinet / Modbus-TCP interface	4899 0301

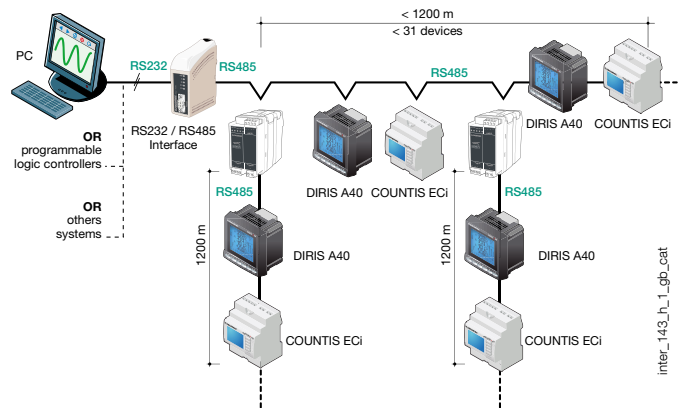
## RS422 / RS485 repeater



### Function

In some applications the maximum distance and/or the maximum number of devices can be exceeded. One solution to this technical restriction is to install an interface which amplifies the signal over a further 1200 m (at 9600 bauds) for 31 devices.

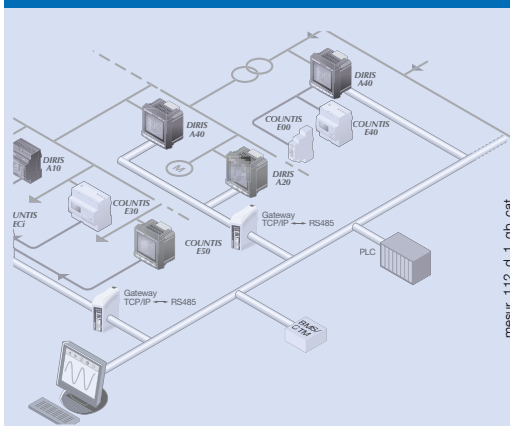
In addition, it allows you to introduce a new branch to the network, thereby making it possible to reduce the length of connection cable required by avoiding back and forth cabling.



### References

Auxiliary power supply $U_s$	Frequency	Reference
95 ... 240 VAC / 110 ... 250 VDC	50 Hz	4899 0120

## Other solutions and services



The accessories listed in these pages represent a selection from our range.

We can supply many other solutions upon request, such as SHDSL interfaces, fibre optics/RS485, GSM/GPRS and protocol converter interfaces.

### Need something integrating into your network?

No problem for our Expert Services team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.



# WEBVIEW

Monitoring software for energy measurement and analysis

Software suite



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## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Plug & Play
- > Easy to use
- > Various functions

## Compliance with standards

- > IEC 62974-1<sup>(1)</sup>



*(1) Energy Server standard applicable to WEBVIEW-M and L versions hosted on DIRIS G, DIRIS Digiware D-70 and DATALOG H80.*

## Function

The **WEBVIEW** web server embedded in DIRIS A-40 meters and in communication gateways (DIRIS G, DIRIS Digiware D-70, DATALOG H80/H81) delivers real-time monitoring of all measurements from up to 200 devices and displays the breakdown of energy consumption.

Uncover the causes of electrical disturbances and anticipate maintenance requirements thanks to historical records of multiple electrical parameters.

Pre-set alarms defined by the user can be sent by e-mail. Users can access WEBVIEW via a web browser on a PC or a tablet.

## Advantages

### Plug & Play

Quickly configure WEBVIEW thanks to the automatic detection of Socomec devices. Create geographical and electrical hierarchies to reflect your installation and your processes.

### Easy to use

WEBVIEW centralises all the device measurements via a single clear and user friendly interface. The ergonomics of the display screens allow users to easily and quickly analyse the parameters and the behaviour of the installation.

### Various functions

Very easy to configure and to use, WEBVIEW offers a wide range of features including real-time monitoring, alarm management and transmission by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by end-use and location.

## Characteristics

Type	Hosting	Functions	Number of measurement devices
WEBVIEW-S	DIRIS A-40	Monitor, Alarm, View	1
WEBVIEW-M	DIRIS G-30/G-40	Monitor, View	32
	DIRIS G-50/G-60	Monitor, Alarm, View,	32
	DIRIS Digiware D-70	Monitor, Alarm, View, Represent	32
WEBVIEW-L	DATALOG H80/H81	Monitor, Alarm, View, Represent	100/200

### Functions

#### Monitor

- Automatic detection of connected devices.
- Summary of the parameters measured for the electrical network and loads.
- Display of voltage, current, power, power factor, total harmonic distortion (THD) and harmonics per rank.
- Display of average/instantaneous values with min/max limits depending on the devices.
- Total and partial energy consumption per load.
- Input/output status.
- Synchronisation of device clocks.
- Graphical or table representation.

#### Alarm

- Alarms for overloads, events and input status changes.
- Display of alarms history.
- Sorting by type, nature, criticality or state.
- Alarms displayed on the main page.
- Transmission of alarms by e-mail (SMTP).

#### View

- Historical measurements and consumption.
- Historical records of multiple power parameters.
- Distribution of consumption by location, by end-use and by utility (water, gas, electricity...).
- Export of consumption data in a CSV format.

#### Represent

- Photoview: customised synoptic of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes...)
- Real time data tracking via the insertion of parameters on the background pictures (measurement points, alarms, text...).
- Display of the mapping of the measurement plan by cascading of several images.



### References

Type	Hosting	Part number
WEBVIEW-S	DIRIS A-40	4825 0501
WEBVIEW-M	DIRIS Digiware D-70	4829 0202
	DIRIS G-30	4829 0300
	DIRIS G-40	4829 0301
	DIRIS G-50	4829 0302
	DIRIS G-60	4829 0303
WEBVIEW-L 100	DATALOG H80	4854 0020
	DATALOG H81 (3G network)	4854 0021
WEBVIEW-L 200	DATALOG H80	4854 0030
	DATALOG H81 (3G network)	4854 0031





# N'VIEW

## Online service to manage your energy performance

Software suite



soft\_043\_a\_1\_x\_cat

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



### Strong points

- > Easy to use
- > Multi-user access
- > Various functions

### Function

The **N'VIEW** online service offers easy and intuitive analysis of energy consumption regardless of the business sector (industry, building, infrastructure...).

Compatible with the main market communication gateways including Socomec devices (DIRIS G, DIRIS Digiware D-70 and DATALOG H80/81), N'VIEW platform ensures that multi-utility data is collected.

From the identification of potential energy savings to long-term performance tracking and investment validation, N'VIEW offers a complete package of services for efficient energy management.

To meet specific requirements, the N'VIEW platform can also interface with other energy management applications (Energy Apps) which are already available or can be created on demand.

### Advantages

#### Easy to use

Cloud-based hosting on a scalable and secure platform ensures the project is easily implemented, and offers great flexibility with an N'VIEW subscription.

Eliminates technical infrastructure problems, leaving the customer free to focus on management of energy performance.

#### Multi-user access

The N'VIEW service appeals to stakeholders directly involved in energy performance, such as Energy Managers and technical users. It also provides services to help the management team define the energy strategy, and to help management controllers optimise and allocate energy spending.

#### Various functions

The N'VIEW service provides a wide range of functions for the monitoring of measurements, the analysis of energy consumption levels and the management of costs.

All these features are part of a continuous improvement plan for energy performance, as defined in standard ISO 50001.

## Functions

### View

- Display of all data collected.
- Configuration of multiple viewing options (widgets) appropriate to the data displayed.
- Customisation of dashboards by user and by site.
- Graphical representation of the energy data (electrical hierarchy, site map or building map, industrial process diagram...).
- Comparison and ranking of sites based on their energy performance.



### Analyse

- Analysis and comparison of multi-utility energy consumption according to multiple criteria (time frames, sites, fluids).
- Analyse energy costs.
- Tariff simulation and comparison.
- Management of external influencing factors (temperature, surface area, occupancy rate, production).
- Set up indicators for measuring energy efficiency.
- Measurement and verification based on the international method, IPMVP (International Performance Measurement and Verification Protocol).
- Forecasting of consumption levels and costs.
- Manage and archive customisable queries.



### Alert and communicate

- Generation of personalised reports.
- Programming of multiple alarms (quality of data, cost overruns, consumption overruns).
- Manage and log alerts.
- Sending reports and alarms by e-mail (and by SMS for alarms).



## References

Type		Reference
Pack N 'VIEW 25 datapoints	Commissioning package for 25 datapoints	Contact us
	Annual subscription for 25 datapoints	Contact us
Pack N 'VIEW 50 datapoints	Commissioning package for 50 datapoints	Contact us
	Annual subscription for 50 datapoints	Contact us
Pack N 'VIEW 100 datapoints	Commissioning package for 100 datapoints	Contact us
	Annual subscription for 100 datapoints	Contact us
Pack N 'VIEW 250 datapoints	Commissioning package for 250 datapoints	Contact us
	Annual subscription for 250 datapoints	Contact us



# COUNTIS and DIRIS management software tools

Software suite



Easy Config software



Analysis software

Compatible with:



COUNTIS E



DIRIS A



DIRIS Digiware



DIRIS B30

## Function

To get the most effective use from your Socomec measurement and metering devices, we can provide dedicated software tools:

### Easy Config software

The Easy Config software enables quick and easy remote device configuration for DIRIS Digiware, DIRIS B, DIRIS G, DIRIS BCMS 720, COUNTIS E and DIRIS A devices. Configuration files can be copied from and sent to these devices, or they can be created without communication and sent at a later time.

Multiple devices can be configured from a single file which is especially useful for OEMs and panel builders, saving time when having to program many devices with the same configuration.

### Analysis software

On the basis of an event log and the displayed curves, the Analysis software allows the analysis and extraction of quality data, as well as fault current monitoring (Residual Current Monitoring).

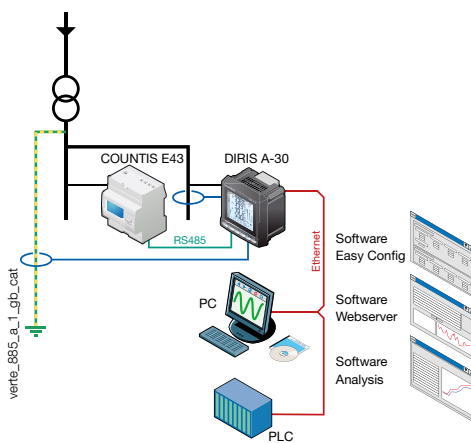
### Webserver function

The DIRIS A's optional Ethernet modules integrate HTML pages, enabling the Webserver function to be directly accessed through a standard web browser (Internet Explorer, Firefox...), eliminating the need for software installation.

The Webserver function enables:

- monitoring of electrical values,
- viewing of energy consumption,
- managing alarms,
- configuration of the main parameters of installation
- viewing and extracting load curves (through a .CSV file).

## Principle diagram



	Easy Config	Webserver	Analysis	WEBVIEW	HYPERVIEW
COUNTIS E with RS485 communication	•	• <sup>(1)</sup>		•	•
COUNTIS Eci	•	• <sup>(1)</sup>		•	•
DIRIS A10, A14, A17 and A20 with RS485 communication	•	• <sup>(1)</sup>		•	•
DIRIS A40 with RS485 communication	•	• <sup>(1)</sup>		•	•
DIRIS A40 with Ethernet communication module	•	•		•	•
DIRIS A60 and A80 with RS485 communication module	•	• <sup>(1)</sup>	•	•	•
DIRIS A60 and A80 with Ethernet communication module	•	•	•	•	•
DIRIS B	•			•	•
DIRIS Digiware	•			•	•
DIRIS G	•			•	•
DIRIS BCMS 720	•	•			•

(1) through DIRISA fitted with an Ethernet communication module with RS485 gateway.

## Easy Config software

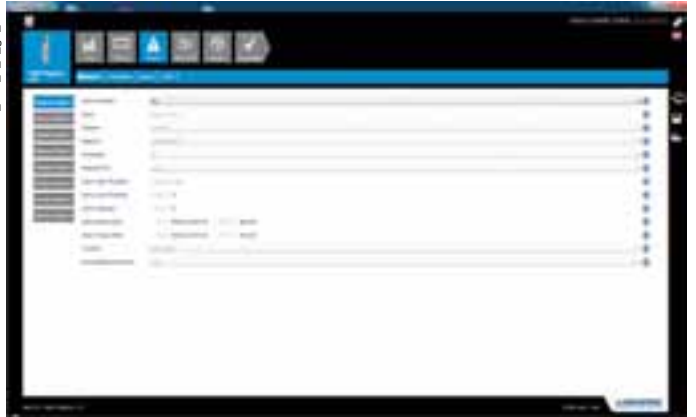


The Easy Config software enables quick and easy remote configuration of DIRIS Digiware, DIRIS B, DIRIS G, DIRIS BCMS 720, COUNTIS E and DIRIS A devices.

It offers the following functions:

- Creating the configuration of devices prior to their connection (configuration template).
- Saving a configuration to a PC.
- Loading the configuration to devices through USB, RS485 or Ethernet.
- Retrieving the configuration of a device through USB, RS485 or Ethernet for saving, copying or modification purposes.

diris\_886\_a\_1\_gb\_cat



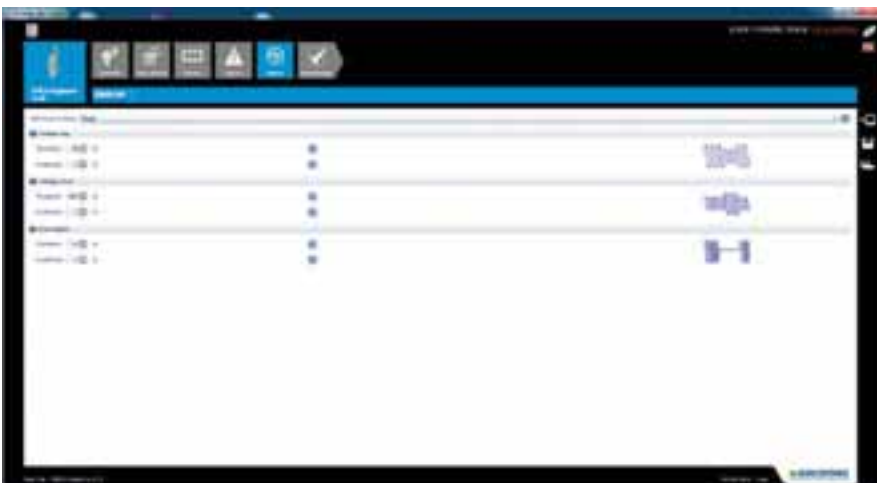
## Configuration of loads

diris\_883\_a\_1\_gb\_cat



## Configuration of Quality events

diris\_884\_b\_1\_gb\_cat



# COUNTIS and DIRIS

## management software tools

### Analysis software

Improvement to the reliability of your electrical installation can be achieved with this software through the analysis of displayed event curves generated from the event log.

It offers the following functions:

- A list of voltage dips, cut-offs, overvoltages and overcurrents.
- A list of alarms  $I\Delta n$  and  $I_{PE}$  for DIRIS A80.
- A display of 10 curves (3V, 3U, 3I, In) linked to the event with a zoom functionality.
- The classification of events according to the EN 50160 standard.
- Exporting of pictures or curve files.

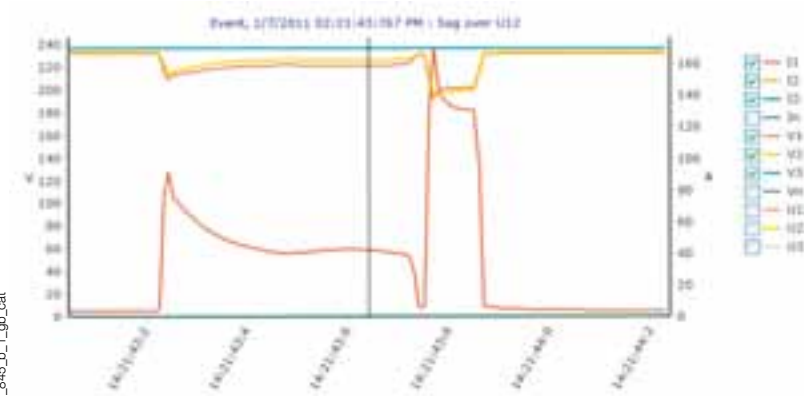
This software can be connected to the DIRIS using either an RS485 MODBUS or Ethernet communication module.  
The Analysis software can be downloaded from the SOCOMEC website: [www.socomec.com](http://www.socomec.com)

### Event log



diris\_837\_a\_1\_gb\_cat

### Event display and analysis



diris\_845\_b\_1\_gb\_cat

## Webserver function



diris\_776\_a\_1\_cat

DIRIS A Ethernet communication module with RS485 gateway

The Webserver function comprises HTML pages embedded within the optional Ethernet communication module of the DIRIS A's multifunction meter. These pages can be accessed via an internet browser, simply by entering the DIRIS A IP address.

The Webserver offers the following functions:

- Monitoring of electrical values.
- Viewing of energy consumption.
- Management of alarms.
- Remote configuration of the main parameters for meters within the installation.
- Viewing and extracting load curves (through a .CSV file).

## Instantaneous report of measurements



diris\_867\_a\_1\_gb\_cat

Display for viewing instantaneous and average electrical values.

## Power and energy



diris\_869\_a\_1\_gb\_cat

Display for viewing instantaneous and average power measurements and energy consumption.

## Configuration of the devices



diris\_868\_a\_1\_gb\_cat

## Alarms



diris\_884\_a\_1\_gb\_cat

The latest alarms are date and time registered. The duration and value for each alarm (low limit value / high limit value), as well as the related output alarm number, are also displayed. Data can be extracted in \*.csv format.



# References list

References	Pages	References	Pages	References	Pages	References	Pages
18xx xxxx	130	192Y 0175	126	4829 014x	67	4850 3008	115
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